CRIMSON PIPELINE L.P.

DOMINGUEZ CHANNEL OIL SPILL

PROJECT PLAN FOR INVESTIGATION REMOVAL, MITIGATION OR PREVENTION OF A SUBSTANTIAL THREAT OF OIL DISCHARGE

May 3, 2011

THE DOMINGUEZ CHANNEL OIL SPILL
PROJECT PLAN FOR INVESTIGATION REMOVAL, MITIGATION OR PREVENTION OF A SUBSTANTIAL THREAT OF OIL DISCHARGE

WAS PREPARED BY THE FOLLOWING COMPANIES

CRIMSON PIPELINE L.P.,
BEACON ENERGY SERVICES INC.,
WGR SOUTHWEST INC.,
AND
STANTEC CONSULTING CORP.

CRIMSON PIPELINE L.P.
DOMINGUEZ CHANNEL OIL SPILL
PROJECT PLAN FOR INVESTIGATION REMOVAL,
MITIGATION OR PREVENTION OF
A SUBSTANTIAL THREAT OF OIL DISCHARGE

TABLE OF CONTENTS

Section **Page**

TABLE OF CONTENTS (Continued)

LIST OF FIGURES

LIST OF APPENDICES

CRIMSON PIPELINE L.P.
DOMINGUEZ CHANNEL OIL SPILL
PROJECT PLAN FOR INVESTIGATION REMOVAL,
MITIGATION OR PREVENTION OF
A SUBSTANTIAL THREAT OF OIL DISCHARGE

1.0 INTRODUCTION

This Project Plan for Investigation, Removal, Mitigation or Prevention of a Substantial Threat of Oil Discharge ("Project Plan"), dated May 3, 2011 is submitted by Crimson Pipeline, L.P. (Crimson)[1] to the U.S. Environmental Protection (EPA) Agency, Region IX in compliance with Paragraph 14 of the Order for Removal, Mitigation or Prevention of a Substantial Threat of Oil Discharge No. OPA CWA 311-09-2011-0002, dated March 30, 2011 (Order).[2] Crimson submitted a Work Plan on April 13, 2011. This Project Plan incorporates EPA's comments on the April 13 Work Plan.

On December 21, 2010, the National Response Center (NRC) received an incident notification of an oil sheen coming from the Dominguez Channel near Wilmington, CA. Dominguez Channel is an intertidal drainage system in southern Los Angeles County that empties into the East Basin of the Port of Los Angeles and the Pacific Ocean. It was observed that the oil entered the channel from the outfall of a City of Los Angeles storm water lift station. Oil entered the storm water system from an outfall of the Alameda Corridor Transportation Agency (ACTA) Right-of Way (ROW) storm water drainage system (french drain). Oil was also observed migrating from the ACTA railroad ROW onto the Shell Lubricants facility, approximately 0.45 miles to the north. Oil from this expression migrated with storm water into the Shell Lubricants facility storm water retention basin. The flow of oil from the apparent source area is intermittent and related to rain events that cause flow in the storm water systems (ACTA, January 2011).

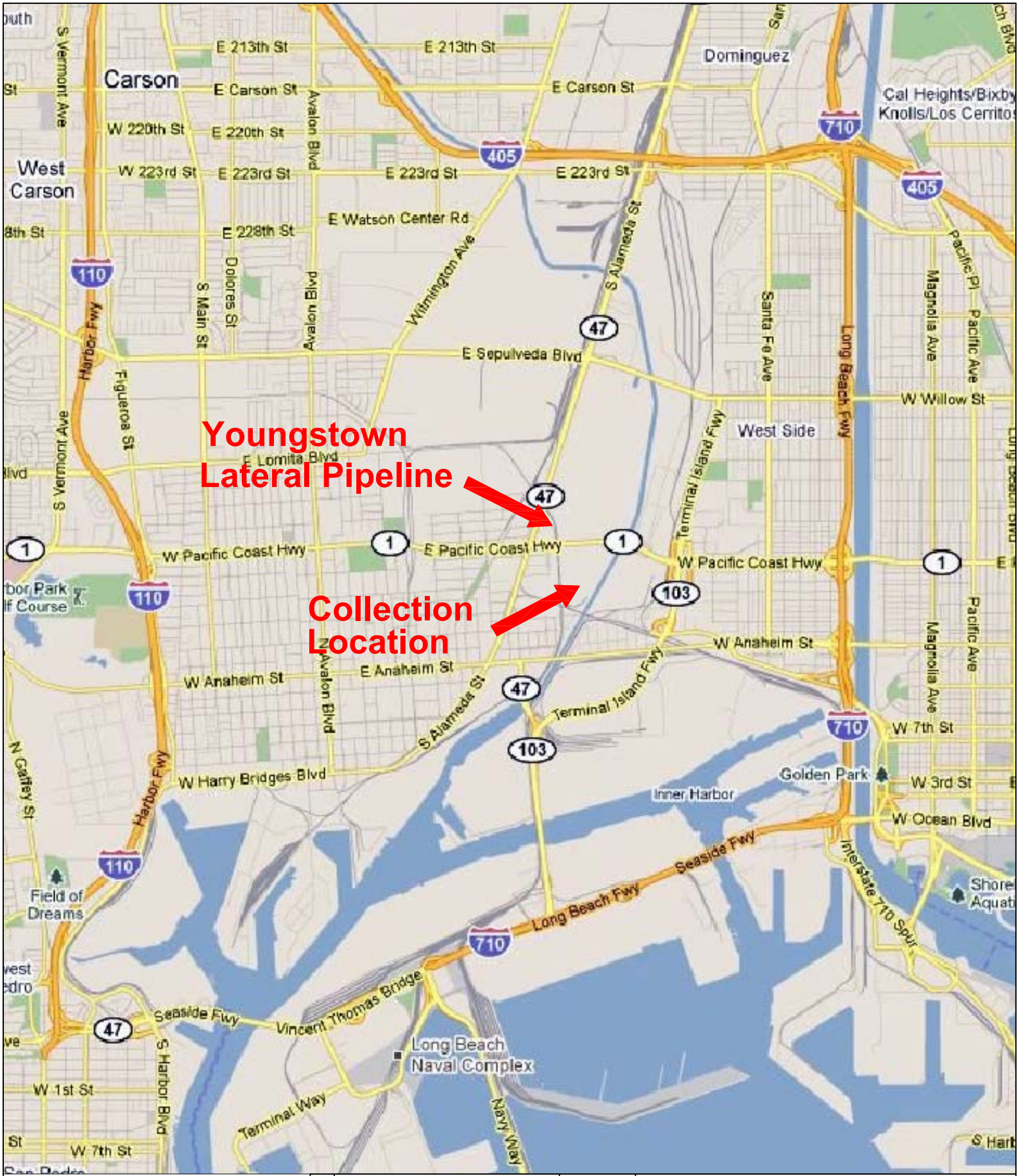
The "Youngstown Lateral" is a 4-in pipeline, which runs within a 12-in casing and, crosses the ATCA railroad ROW in the vicinity of the Tesoro Refinery and the Dominguez Channel near Wilmington, California (Figure 1). On March 29, 2011, an excavation by ACTA of a portion of the

french drain above the Youngstown Lateral revealed damage to the 12-in casing around the Youngstown Lateral.

The area of the suspected release is surrounded by crude oil production, storage and refining facilities. This Project Plan is intended to address only the effects of discharges of crude oil into the

[1] The Order was issued to Crimson Pipeline Management, Inc., which is referred to as "Crimson Pipeline Management Company" in the Order. The Youngstown Lateral Pipeline is owned and operated by Crimson California Pipeline, L.P. Crimson Pipeline, L.P. is the general partner of Crimson California Pipeline, L.P. Crimson Pipeline Management, Inc. is the general partner of Crimson Pipeline, L.P.

[2] This Project Plan is not intended as an admission by Crimson or its affiliates that all or any specific quantity of the crude oil in the ACTA french drain was discharged from the Youngstown Lateral pipeline. Crimson and its affiliates maintain that any release of crude oil from the Youngstown Lateral was the sole result of actions of third parties. This Project Plan is submitted without prejudice to Crimson's or its affiliates' right to recover costs expended pursuant to the Order from ACTA, other third parties or the United States. By submitting this Project Plan, Crimson and its affiliates do not intend to admit that the Order was properly issued or that they are responsible parties under section 311 of the Clean Water Act (33 U.S.C. § 1321) or the Oil Pollution Act (33 U.S.C. § 2701, *et seq.*). Crimson and its affiliates hereby reserve all statutory and common law rights, claims and defenses against the third parties and the United States, including rights, claims and defenses under section 311 of the Clean Water Act and the Oil Pollution Act.



North

Scale: 1" = 0.75 miles

#	Revision Description	Date

Beacon Energy Services
2685 Temple Ave., Signal Hill, CA 90755, (562) 997-3087

Created by: VM | Date: 4/11/2011

Client: **Crimson Pipeline, L.P.**
Dominguez Spill

Figure No.: Figure 1 - Vicinity Map

ACTA french drain. It is anticipated other hydrocarbon contamination may exist within the subsurface of the project boundaries due to other historical events and activities; this plan is not intended to address other subsurface conditions unrelated to this event.

1.1 PURPOSE AND OBJECTIVE

The purpose and objective of this Project Plan is to describe the procedures, protocols and activities that will be performed in response to the Order. Detailed Work Activity Plans will be submitted for the specific activities described in this Project Plan.

1.2 SCOPE OF WORK

This Project Plan is intended to address the requirements of the Order in accordance with the National Contingency Plan (40 CFR 300). Specifically, Paragraph 14 of the Order requires Crimson to prepare the Project Plan to provide a concise description of the activities to be conducted to comply with the Order (Appendix A). These requirements are outlined below.

a. The study, design and implementation of immediate measures to halt the discharge of oil into the environment. This study must include the entire area of the Site, including all areas from the location of the release up to and including Dominguez Channel.

b. The study, design and implementation of measures to clean up and remove all oil and petroleum contamination at all impacted areas of the Site. Each of the areas are identified below along with a reference to the section of this Project Plan where detailed information can be found.

    i. The location of the spill origin (Section 3.1.1 and 3.1.2);
    ii. The migration pathway into the railroad right of way (Section 3.1.3);
    iii. Contaminated soil (Sections of 3.2);
    iv. Sediment and ballast on the railroad right of way (Section 3.2.3);
    v. The railroad subsurface drainage system (Section 3.2.3);
    vi. The impacted parking lot area at the Shell Refinery Lube Plant (Shell Lube Plant, Section 3.2.4);
    vii. The surface and subsurface drainage system at the Shell Lube Plant (Section 3.2.5);
    viii. The storm water management pond for the Shell Lube Plant (Section 3.2.6)
    ix. Any discharge points from the Shell Lube Plant to the Dominguez Channel (Section 3.2.7);

c. The proper identification of and means of disposal for waste generated during the response to this incident, with a means to determine the quantity of petroleum in each waste stream. Quantification methods will be pursuant to the California Department of Fish and Game's (DFG) methods, and consistent with its methodology for oil spill

quantification. Crimsons has followed EPA's direction and incorporated by reference, the DFG waste segregation and oil quantification plan for this project.

d. A Sampling and Analysis Plan (SAP) that includes all sampling and analysis to be performed pursuant to this paragraph. The SAP includes a quality assurance/quality control, data validation, and chain-of-custody procedures regarding all sampling and analyses performed pursuant to this order. Crimson has developed a SAP for this project which is included in Appendix B of this Project Plan.

e. Schedules for implementing and completing all tasks described within the Project Plan. Crimson has included a conceptual schedule in Appendix C. This schedule will be revised as Work Activity Plans are developed and access to the railroad ROW is confirmed.

f. A Health and Safety Plan (HASP) prepared in general accordance with the applicable HAZWOPER standards for this Site. Crimson has developed a template HASP (Appendix D) which will be completed for each work site / work activity. The HASP also identifies the site Health and Safety Officer's role and responsibilities in approving HASP's and his / her responsibilities in managing safety for all work associated with this project.

This Project Plan is intended to address the six (6) items listed above with a goal of working cooperatively with the EPA, other Respondents, and agencies to develop and achieve prevention of any future oil release, investigation, and mitigation of suspected releases.

This Project Plan is intended to provide an action plan for completing oil removal and mitigation activities for the restoration of affected areas of the Site. Although substantial investigation and response work has been completed, investigations and response efforts are still underway at the writing of this Project Plan. Therefore, certain actions described herein may have been implemented or completed at the time of this submittal. Addenda to the Project Plan will be submitted as conditions change or are revealed during subsequent investigation and removal actions as indicated on the project schedule in Appendix C.

This Project Plan, once approved, will be made part of the Order for Removal, Mitigation or Prevention of a Substantial Threat of Oil Discharge.

1.3 PROJECT ORGANIZATION

Key Personnel

Title/Responsibility	Contractor	Name	Phone Numbers	
			Office	*Cell*
EPA Project Manager (OSC)		Jason Musante	--	213-479-2120
California Department of Fish (CDFG) & Game (OSPR) Lieutenant		Bryan Gollhofer	562- 342-7214	562-708-7757
CDFG OSPR Biologist		Cory Kong	562- 342-7214	562-477-7081
CDFG OSPR		James Foto	562- 342-7214	562-598-4292
Crimson Pipeline VP (Project Coordinator)	Crimson Pipeline L.P.	Larry Alexander	562-595-9216	949-922-9895
Project Consultant	Beacon Energy Services Inc.	Mark Reese P.G.	562-997-3087	714-624-5301
Waste Management Supervisor	WGR Southwest Inc.	Bill Senner	562-799-8510	310-629-5260
Removal Coordinator	WGR Southwest Inc.	Graydon Martz P.G.	562-799-8510	310-629-5261
Project Engineer	Stantec Consulting Corp.	Kevin K. Miskin P.E.	909-335-6116	909-224-3406
Investigation Coordinator	Stantec Consulting Corp.	Jim DeWoody	909-335-6116	619-459-2089
Quality Assurance (QA) Officer	Stantec Consulting Corp.	Jim Kerr P.G.	970-879-3250	303-807-4702
Laboratory QA Officer	Test America Laboratory	Lena Davidkova	949-261-1022	--
Environmental Compliance, GIS Drafter	Beacon Energy Services Inc.	Valerie Muller	562-997-3087	310-809-3918

2.0 RESPONSE ACTION

2.1 SITE DESCRIPTION

The Site encompasses the area bounded by the Youngstown Lateral pipeline location (Figure 2) on the northern end and continuing southward for approximately 3000 feet to the "Collection Area" near the vicinity of Leeds Avenue and Grant Street in Wilmington, California (Figure 3). The east - west boundaries of the site plan are defined as the ACTA railroad ROW. While these boundaries are used to geographically describe the Site, Crimson recognizes that the boundaries may change based on actual field conditions discovered during the project investigation.

The Site is divided into several more defined Area of Concerns (AOC) as listed below;

- **Youngstown Lateral – AOC #1** Incorporated in this AOC is the area surrounding the Youngstown Lateral pipeline and damaged casing approximately 900 feet north of the PCH, east of the Tesoro Refinery and the Spur Track to the west (Figure 1).

- **French Drain –AOC #2** This AOC includes the area surrounding both french drains systems that run parallel to the ACTA railroad ROW. AOC #2 includes the area from the Youngstown Lateral south to the City of Los Angeles' storm drain system on Leeds Avenue just north of the intersection with Opp Street.

- **Shell Lube Plant – AOC #3** This AOC incorporates the eastern edge of the Shell Lube Plant from the Catch Basin area located in the northeast corner of the property to the southeast corner as presented in Figure 2.

- **Storm Drain Collection-AOC #4** The storm drain collection area is located south of the 18-in outfall from the french drain system near the intersection of Leeds Avenue and Grant Street and continues south to covers any areas of investigation to the Dominguez Channel.

- **Dominguez Channel-AOC #5** This AOC includes the sidewall, banks, and surface water of the Dominquez Channel adjacent to the Shell Storm water retention pond to where the channel empties into the East Basin of the Port of Los Angeles. This Area has been determined to be completed and is no longer a concern per the EPA.

.

North

Scale: 1" = 250'

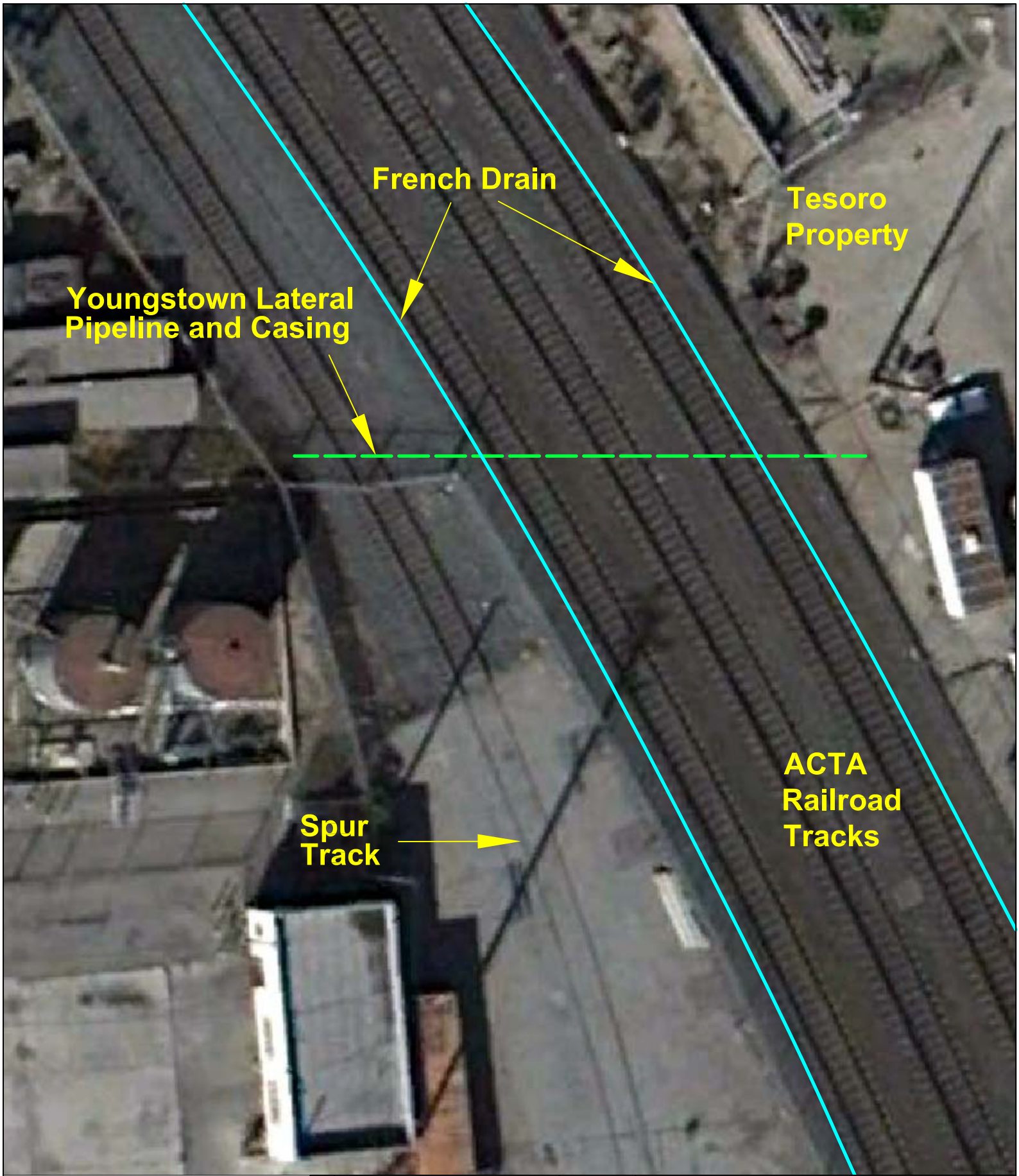
#	Revision Description	Date
1	Change Figure Number	4/25/2011

Beacon Energy Services
2685 Temple Ave., Signal Hill, CA 90755, (562) 997-3087

Created by: VM | Date: 4/11/2011

Client: **Crimson Pipeline, L.P.**
Dominguez Spill

Figure No.: Figure 2 - Site Map - Shell Plant & Collection Area



North

Scale: 1" = 20'

#	Revision Description	Date
1	Change Figure Number	4/25/2011

Beacon Energy Services
2685 Temple Ave., Signal Hill, CA 90755, (562) 997-3087

Created by: VM | Date: 4/11/2011

Client: **Crimson Pipeline, L.P.**
Dominguez Spill

Figure No.: Figure 3 - Site Map - Source Area

2.2 PREVIOUS EMERGENCY RESPONSE ACTIONS TO DATE

The following summary of emergency response actions and investigations performed by ACTA and EPA is based on information provided in ACTA's Work Plans and recent discussions with ACTA personnel. The details of the emergency response actions will be confirmed with ACTA and presented in the final report.

2.2.1 Modifications to Shell Source Area

Approximately 900-ft south of Pacific Coast Highway (PCH), oily water overflowed a concrete barrier on the west side of the ACTA ROW, and flowed onto the Shell Lube Plant. At this location (referred to as the Shell Source Area) ACTA and NRC, increased the height of the west wall using sandbags, enlarged and improved the collection of the oily/water in the excavated sump area. Detail of the emergency response actions are included below.

In December 2010, the EPA and their contractor, EQM, installed two catch basins to contain the oily water flowing from the ACTA Right of Way and excavated a sump (approximately 2-ft by 2-ft and 2-ft deep) in the ballast north of these basins.

ACTA improved the Catch Basin Area by extending the existing sandbags further along the western fence line. Additional sandbags were placed on top of the existing sandbags; increasing the height to approximately 4-ft. Plastic sheeting was then installed on the east side of the sandbags to decrease permeability. The plastic sheeting was anchored at the bottom by removing soil/ballast in an about 12-in wide and 4-in in depth of for the full length of the wall. The plastic sheeting was placed in this excavated area and additional row of sandbags were placed on top. The plastic sheeting was anchored at the top with an additional row of sandbags.

ACTA's subcontractors improved the sump area by installing 15-in diameter perforated PVC pipes (wells), ranging from about 4-ft to 8-ft in length in this area. Approximately 2-ft of the PVC well was installed above grade and between 2-ft to 6-ft was installed below grade. The shorter length of pipe was placed near buried utilities such as the Shell 18-in diameter corrugated steel pipe (CSP) storm drain and 12-in oil pipeline (identified as ARCO). Underground Service Alert (USA) was contacted 48-hrs prior to any excavation. The wells were installed to assess below grade conditions adjacent to the 8-in diameter railroad underdrain pipe. The deeper wells were installed by an 18-in diameter auger, placing the pipe in the center and backfilling with angular ballast. The shallower wells were installed by hand excavating these areas, placing the pipe in the center and backfilling with ballast. Soils removed from this area were placed in Department of Transportation (DOT) approved 55-gal drums for eventual sampling and disposal. Periodically the oil on the water surface will be manually removed with a vacuum truck during the dry season and oil and water will be removed with a vacuum truck during a rain event as needed. ACTA and Crimson is researching the possibility of installing a passive hydrocarbon skimmer system inside these wells (ACTA, January 2011).

2.2.2 Video Taping 8-in Track French Drain System in the Texaco Slot Area

In the first and second week of January, National Plant Services (an EPA contractor) inspected a portion of the 8-in french drain system starting at the manholes located about 120-ft south of PCH and proceeding north in both the west and east side track drains. The inspection was performed by inserting a remote controlled robotic crawler camera into the drains and viewing the results on a monitor. The inspection was videotaped for future reference. The inspection of the west drain concluded at the cleanout located at Station 978+70 due to a blockage (Figure 4) and in the east drain at Station 976+40 due to the loss of traction by the robotic crawler. The blockage on the west side drain appears to have been caused by ballast entering through a damaged cleanout into the track drain. The loss of traction on the east side drain was caused by a thick layer of oil in the bottom of the french drain system. ACTA proposed to continue the inspection of the french drain system starting at the same manholes located about 120-ft south of PCH (Station 983+30) and working south. National Plant Services was contracted to perform these activities. Additional inspections were performed at the following locations:

Section A = West side proceeding north and south, between manholes at Station 983+30 and Station 999+00.

Section B = East side proceeding north and south, between manholes at Station 983+30 and Station 999+00.

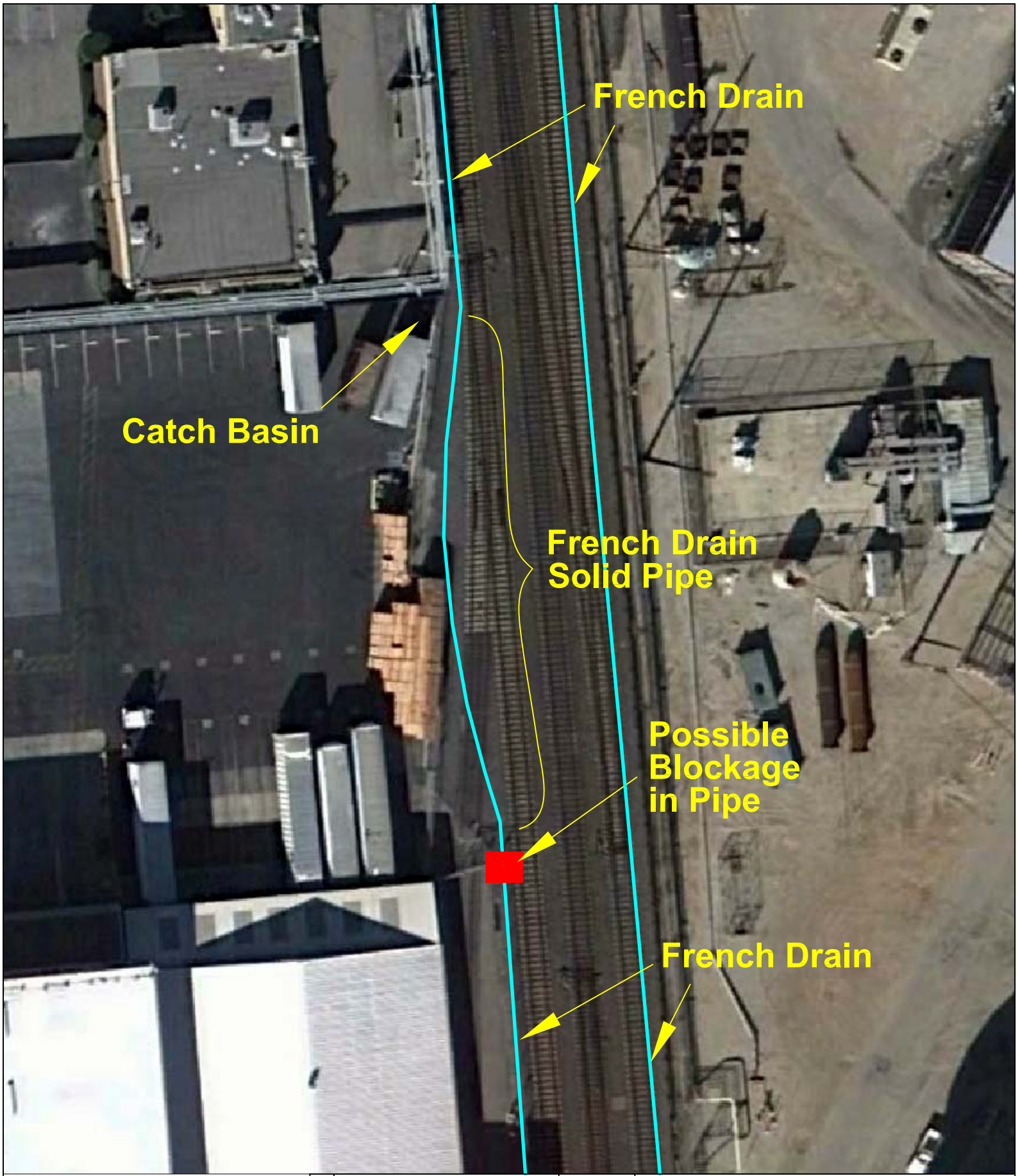
Section C = West side proceeding north and south, between manholes at Station 999+00 and Station 1002+25,

Section D = West side proceeding north and south, between manholes at Station 1002+25 and Station 1002+60,

Section E = Proceed east and west, between manholes at Station 1002+60 (west side) and Station 1002+80 (east side),

Section F = East side proceeding north and south, between manhole at Station 999+00 and where the track storm drain system tees into Segment E.

At the conclusion of the inspection activities, a report will be completed along with a copy of the videotape generated during the inspection activities and provided to the EPA. This report will document the location of any blockages, the presence of oil, and other significant findings (ACTA, February 2011).



North

Scale: 1" = 40'

#	Revision Description	Date
1	Change Figure Number	4/25/2011

Beacon Energy Services
2685 Temple Ave., Signal Hill, CA 90755, (562) 997-3087

Created by: VM | Date: 4/11/2011

Client: **Crimson Pipeline, L.P.**
Dominguez Spill

Figure No.: Figure 4 - Site Map - Track Area

2.2.3 Removal of Oil from City of Los Angeles Leeds Avenue Storm Drain System and Lift Station

The impacted storm water entered the City of Los Angeles' storm drain system on Leeds Avenue just north of the intersection with Opp Street and traveled south into the City's sump lift station located on I Street (Figure 5). The impacted storm water was pumped through the City's sump lift station and was discharged into the Dominguez Channel south of the intersection of Leeds Ave and Southerland Ave.

ACTA assumed maintenance and operation (M&O) of Sump Lift Station No. 692 on January 21, 2011. The M&O activities included the drawdown of nuisance water that continually enters the pump station, the removal of any oily sheen on top of the water in the wet well, placement and maintenance of the boom in the Dominguez Channel, and coordination with the City of Los Angeles or their contractor during rain events.

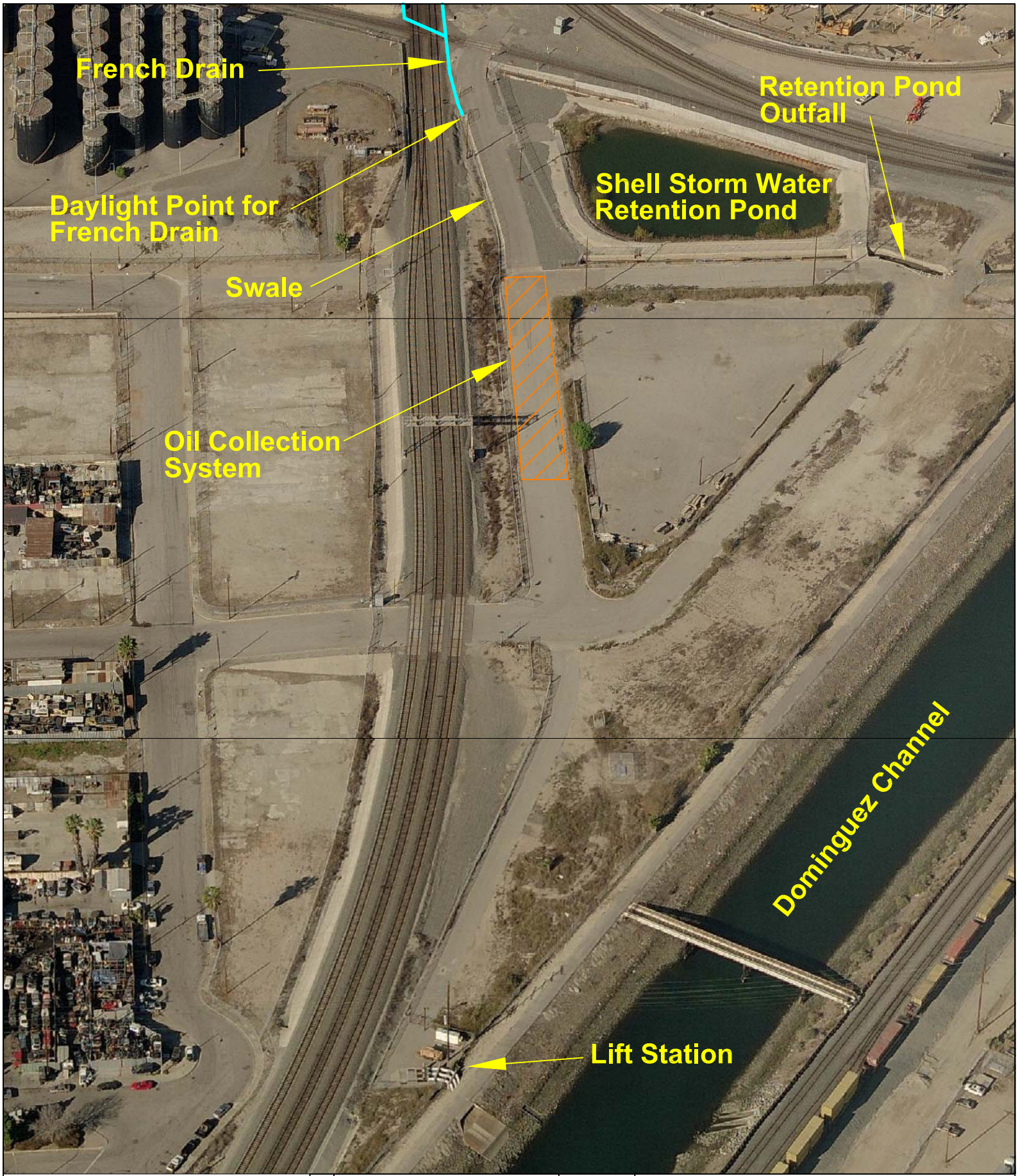
As part of the emergency response plan for the sump lift station wet well and the storm drain system, ACTA mobilized personnel and equipment to the Site. ACTA personnel delineated and established safe working areas around the storm drain catch basins and manholes along Leeds Avenue to clean the storm drain Inlets and pipeline to remove oily water from the sump lift station including water from connector laterals near the Site. Confined space entries was utilized to clean the interior of the storm drain lines by pressure washing the interior drains leading from the Leeds Avenue catch basins to the sump lift station wet well. The sump lift station, wet wells, connector laterals and storm water drain lines were cleaned until the cleaning waters produced no oil sheen.

Sorbent material was utilized to collect free oil during the cleaning operations and removed at the completion of the cleaning operation. During cleaning operations, a vacuum truck or pump system was used to pump out impacted oily water. Approximately 100,000 gallons of impacted oily water was transferred into 21,000-gallon Baker tanks staged on-site.

At the completion of the work activity, the interior of the Baker tanks will be washed clean and the waste water disposed of in a similar manner (ACTA, February 2011).

2.2.4 Collection and Treatment of Storm Water

Fugitive oily product entered the railroad french drain system within the ACTA ROW in the area north of PCH and then migrated south until the oily waste was discharged into Leeds Avenue near the intersection with Grant Street. The oily runoff flowed south and then entered the City of Los Angeles' storm drain system on Leeds Avenue just north of the intersection with Opp Street. The oily waste traveled south from the intersection into the City's sump lift station located on I Street. The City's sump lift station then discharged the oily water into the Dominguez Channel.



North

Scale: 1" = 100'

#	Revision Description	Date
1	Change Figure Number	4/25/2011

Beacon Energy Services
2685 Temple Ave., Signal Hill, CA 90755, (562) 997-3087

Created by: VM | Date: 4/11/2011

Client: **Crimson Pipeline, L.P.**
Dominguez Spill

Figure No.: Figure 5 - Site Map - Outfall Area

As part of the emergency response action EPA installed a storm water collection and treatment system at the location near the intersection of Leeds Avenue and Grant Street drains to the asphalt surface. The collection and treatment system was located south of the 18-in outfall from the french drain system. The collection and treatment system was designed as a "polishing area" prior to discharging storm water into Leeds Avenue curb and system.

During the emergency response action ACTA mobilized personnel and equipment to intersections of Leeds Ave. and Grant Street to install a larger collection and treatment system. The area of the collection and treatment was spray painted prior to placement of materials.

ACTA improved and enlarged the existing collection and treatment system by placing Temporary Railings (Type K), also known as K-Rails, along the east and west curb (in the gutter) of Leeds Avenue, and across both ends. A V-ditch was used to transport the storm water from the southern end of the 18-in corrugated steel pipe (CSP) at the northwest corner of Leeds Avenue and Grant Street to the collection and treatment system.

After placement of the K-Rails, the area was lined with 10-mil plastic sheeting, including covering the sidewalls of the K-Rails. The plastic sheeting (rolls of 20-ft by 100-ft) was overlapped by approximately 2-ft with the southern section placed under the northern section. Sandbags were placed along the overlapped area to create a seal. Sandbags were also used to anchor the plastic along the bottom of the K-Rails on the inside and outside of the collection and treatment area.

Three weir areas were constructed in the same manner equal distant along the length of the detention area except the plastic sheeting extends up and over each row of K-Rails. Sandbags were placed at the east and west ends of the K-Rails where the weirs were installed.

The weir system contains PVC pipes with valves which will allow the movement of water between each weir area. As the flow of water fills up each weir area, the water will slow down allowing the oil to float to the top where it can be removed with pads and booms prior to being released into the next downstream weir area.

ACTA estimated the volume of the water in the collection and treatment system as approximately 170,000-gals assuming an average depth of 2-ft. Treated water will be discharged to the City of Los Angeles storm drain (ACTA, February 2011).

Crimson intends to take over operation of the containment and collection facilities and ongoing response activities at the Shell Lube Plant and at the Collection Area as described above. The takeover by Crimson will occur as soon as Crimson enters into access agreements with the property owners of those facilities. Crimson will coordinate the transition with ACTA and their contactors.

3.0 PROJECT PLAN

3.1 STUDY, DESIGN, AND IMPLEMENTATION TO HALT DISCHARGE OF OIL

This section of the Project Plan is divided into segments to more precisely describe the additional studies and investigations that will be conducted as part of the prevention and investigation of oil discharge. Subject to obtaining access agreements and cooperation of numerous businesses and property owners, Crimson intends to assess and investigate these areas and to implement any required mitigation measures by September 2011.

Crimson will prepare specific work plans for approval by EPA. These plans will describe activities to be undertaken to investigate and mitigate possible sources of oil from areas which may contain free oil. Each Work Activity Plan will have a schedule of activities to be performed and a timeline for completing the work.

3.1.1 Source Control

It is suspected that oil was released from the Youngstown Lateral pipeline casing as the result of a leak in the pipeline and damage to the casing that is described below (Figure 3). The pipeline was shutdown on October 18, 2010 after a small quantity of oil (approximately two gallons) was discovered to have leaked from a casing vent on the east side of the pipeline location. Crimson isolated the Youngstown Lateral pipeline from the THUMS 8-in pipeline by closing the valve at the connection. Crimson then pressurized the Youngstown Lateral pipeline to evaluate the integrity. The line failed to hold pressure. Crimson then flushed all of the oil from the pipeline using water, displacing the oil into a vacuum truck. Crimson then isolated the pipeline from the Youngstown Lease and the THUMS 8-in pipeline by closing all of the associated valves.

Crimson then used the casing vents to attempt to flush any oil from the casing. Water was placed into the casing on the west side and recovered through the casing vent on the east side using a vacuum truck. Approximately 50 barrels of water were introduced into the casing and approximately 50 barrels of oily water were recovered from the casing. Based on the actions taken by Crimson, it is believed that any potential on-going source from the Youngstown Lateral pipeline has been eliminated.

The pipeline casing is intended to contain any oil leaking from the pipeline. The pipeline had been pressure tested in 2007 at 450 psi, well above its operating pressure and had passed that test. The appearance of oil in the vent was consistent with a leak in the pipeline. The fact that a small quantity of oil had escaped from the vent indicated that the casing was intact and that a small leak had developed sometime after the test date. Crimson had no records or other information indicating that the casing had been damaged or had not contained the oil that had leaked from the pipeline.

3.1.2 Source Investigation

In March 2011, Crimson and ACTA conducted investigations of both the east and west ends of the pipeline casing. These investigations confirmed that the casing seals were intact and no oil had been released from the ends of the casing at these locations. The damaged casing was first observed when ACTA removed a section of french drain over the casing on March 29th, 2011 (Figure 6). A visual inspection of the french drain where it crosses the casing along the west side of the west rail revealed that the casing had been damaged resulting in a hole in the casing and an apparent complete circumferential crack of a butt weld at the location of the hole. The damage appears to have occurred during the construction of the french drain. Because the damage was beneath the french drain and related structures, the damage could not be detected until those structures were removed by ACTA. Crimson was unaware of the damage to the casing prior to March 29th, 2011 and had no reason to suspect that such damage had occurred. Crimson believes that any oil that may have been released from the pipeline and into the casing, exited the casing and entered the railroad french drain at this location. Upon inspection, only minor amounts of oil and water were present in the subsurface at this location. This further confirmed that the pipeline was not an active contributing source to the release.

3.1.3 Source Investigation and Migration Pathway onto ROW

Crimson has developed a preliminary plan to remove the pipeline from the casing and to remove portions of the casing along the west side of the west rail as described in Section 3.1.4. The selection of a final plan is contingent upon obtaining access agreements from various property owners.

Once the pipeline and the damaged portion of the casing have been removed, Crimson will conduct a subsurface investigation in the area to assess both the vertical and lateral extent of any related crude oil contamination associated with a release from the pipeline. Additional details of this investigation will be described in a separate Work Activity Plans currently under development and will be submitted to EPA for approval prior to commencement of work.

3.1.4 Pipeline and Casing Removal Plan

3.1.4.1 Removal of 4-inch pipeline inside Crimson Casing

Crimson has developed the following work activities for the proposed removal of the 4-in pipeline from inside of the casing. The portion of the pipeline to be removed is approximately 85-ft long and will be removed in sections of undetermined length dependent upon access provided from the adjacent property owners. Figures 3 is a drawing of the proposed locations and facilities necessary to remove the pipeline. Crimson will perform the following activities associated with the pipeline removal:

Youngstown Lateral casing beneath french drain on west side of ACTA rail system. French drain and fill material have been removed to expose the casing.

#	Revision Description	Date
1	Change Figure Number	4/25/2011

Beacon Energy Services
2685 Temple Ave., Signal Hill, CA 90755, (562) 997-3087

Created by: VM *Date:* 4/13/2011

Client: **Crimson Pipeline, L.P.**
Dominguez Spill

Figure No.: Figure 6 - Youngstown Lateral - Damaged Casing

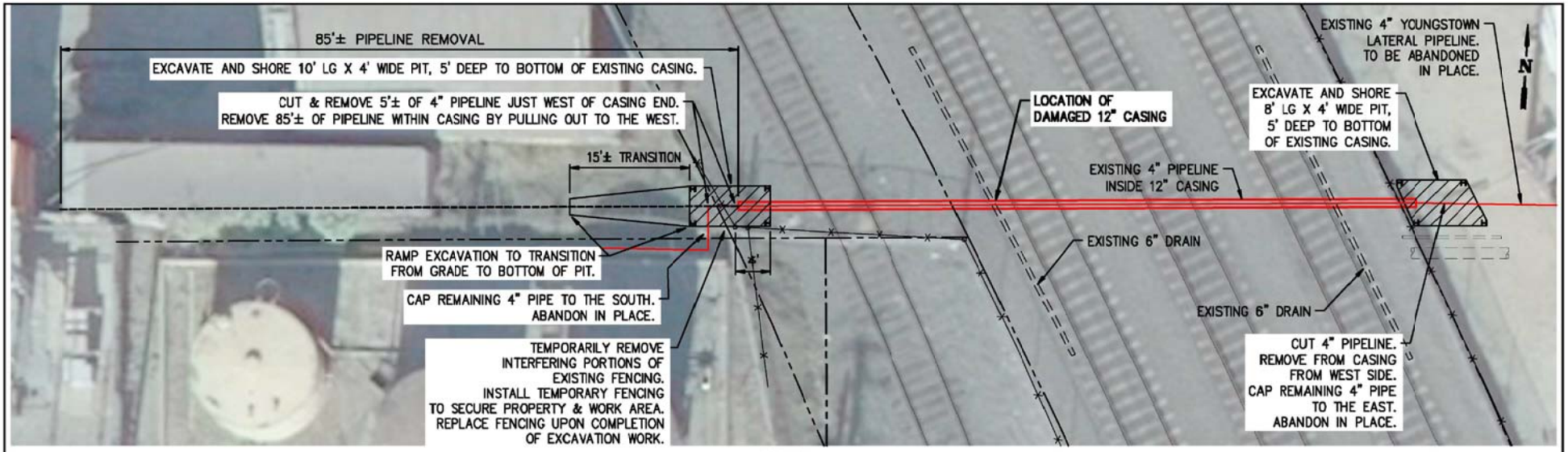
1. Appropriate shoring will be designed / engineered to allow excavation of both the east and west ends of the Crimson casing (Figure 7 and 8).
2. Access to the westerly excavation will require an Access Agreement with one of two adjacent landowners - Tarrico, or Louis J. Grognale Trust (Louie Trust).
3. Access to the easterly excavation will require entry through the Tesoro refinery and the submission and approval of appropriate Tesoro work permits.
4. Preferred access to the westerly excavation will be on the property owned by the Louie Trust. If an Access Agreement with Louie Trust is secured, the 4-in pipe removal will be conducted as follows:

    a. Crimson contractors will excavate and install the shoring required to safely remove the pipeline;
    b. After exposure on both east and west ends, the 4-in pipeline will be cut on both ends;
    c. The pipeline will be marked on each end for orientation to the pre-cut vertical position of the pipeline;
    d. The 4-in pipeline will be pulled from the west end in one complete section onto property owned by the Louie Trust; and
    e. The cut ends of the pipeline will be capped and welded closed.

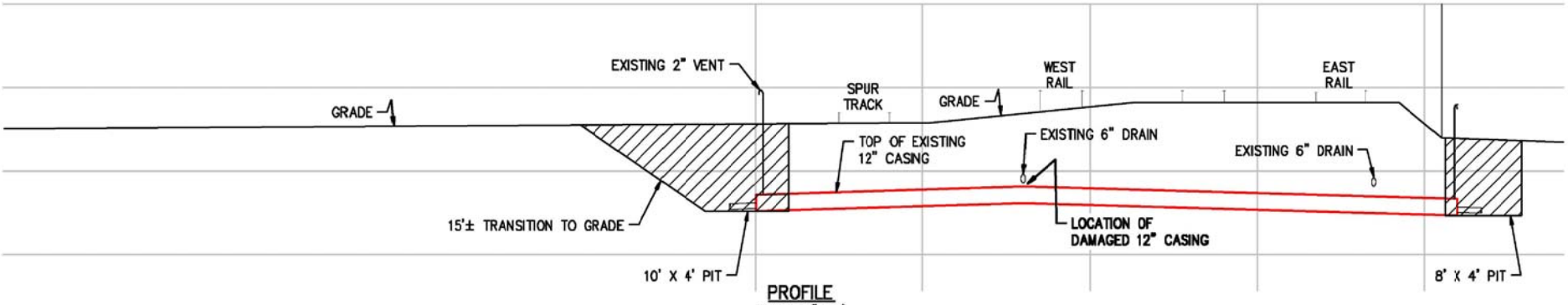
5. If access onto the Louie Trust property cannot be secured, the 4-in pipe removal will be conducted as follows:
    f. Excavation and install shoring will be in accordance with the plan shown in Figure 8;
    g. After exposure on both east and wet ends, the 4-in pipeline will be cut on both ends; and
    h. The 4-in pipeline will be pulled from the east end in sections of approximately 10-ft in length. Each segment will be cut and properly marked to assure that the sequence and vertical orientation of each pipe segment is preserved for later analysis. Segmental removal on the east is required due to the fact that insufficient room is available to pull the pipeline out in one single segment on the east side of the east rail (Figure 8).

3.1.4.2 Cleaning and inspection of Crimson Casing after 4-inch Pipe Removal

1. After the removal of the 4-in pipeline from the casing, an attempt will be made to clean the inside of the casing of any residual oil or debris. Cleaning may include water washing or other appropriate methods.
2. After cleaning, the casing will be inspected internally for any damage. Methods of inspection will be determined based on the results of cleaning and accessibility to the casing, but may include internal video camera inspection or other remote means.



PLAN
1"=12'



PROFILE
HORIZ: 1"=12'
VERT: 1"=6'

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2 INCHES, SCALE ACCORDINGLY)
12' 0' 12' 24'

CONTRACTOR NOTICE

ALL UNDERGROUND UTILITIES OR STRUCTURES REPORTED BY THE OWNER OR OTHERS AND THOSE SHOWN ON THE RECORDS EXAMINED ARE INDICATED WITH THEIR APPROXIMATE LOCATION AND EXTENT. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES OR STRUCTURES SHOWN AND ANY OTHER UTILITIES OR STRUCTURES FOUND AT THE SITE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNERS OF THE UTILITIES OR STRUCTURES CONCERNED BEFORE STARTING WORK. CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. CONTRACTOR AND SUBCONTRACTORS PERFORMING SUBSURFACE EXCAVATIONS SHALL COMPLY WITH ALL REQUIREMENTS OF CALIFORNIA GOVERNMENT CODE SECTIONS 4216.9 PERTAINING TO AN "EXCAVATOR." COMPLIANCE SHALL INCLUDE, BUT NOT BE LIMITED TO, TIMELY NOTIFICATION OF THE APPLICABLE REGIONAL NOTIFICATION CENTER AND CONDUCTING ON-SITE MEETINGS WITH ANY OWNER OF A HIGH PRIORITY SUBSURFACE INSTALLATION.

TG: LA 794 H-4
CRIMSON ATLAS SHEET: THUMS 8" A-10114

811 Know what's below. Call before you dig.

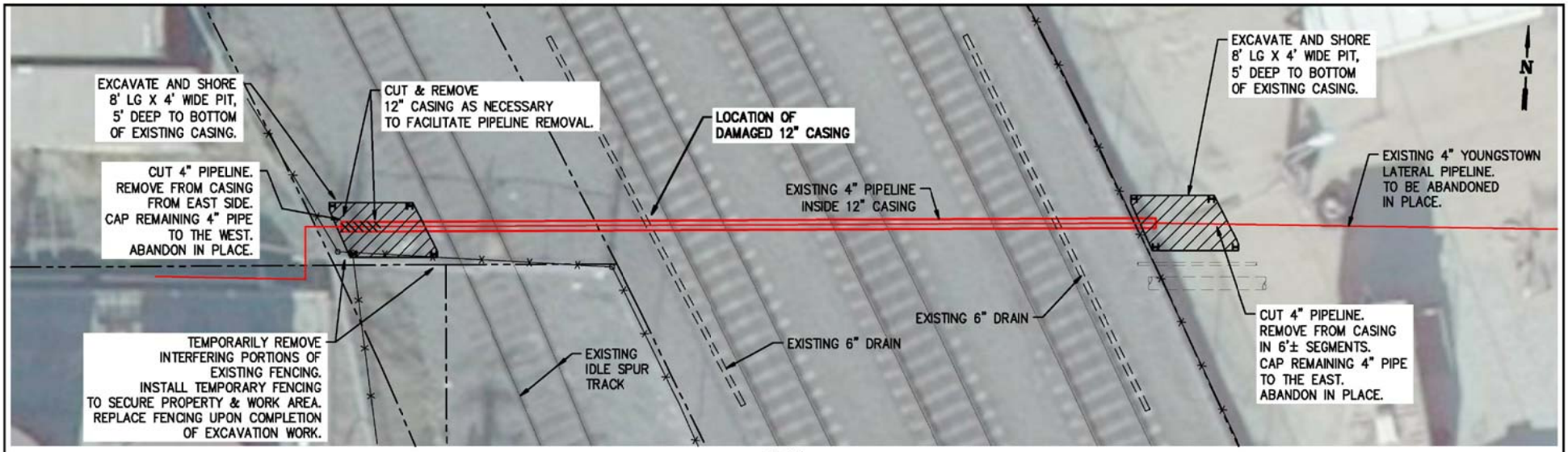
SPEC Services, Inc.
17701 Rowland Street
Fountain Valley, CA 92708
(714) 963-8077

REV NO	DATE	DESCRIPTION OF REVISION	EI NO.	BY	CHK	ELEC ENGR	MECH ENGR	APP	APP	APP
A	04/11/11	ISSUED FOR REVIEW		RWS						

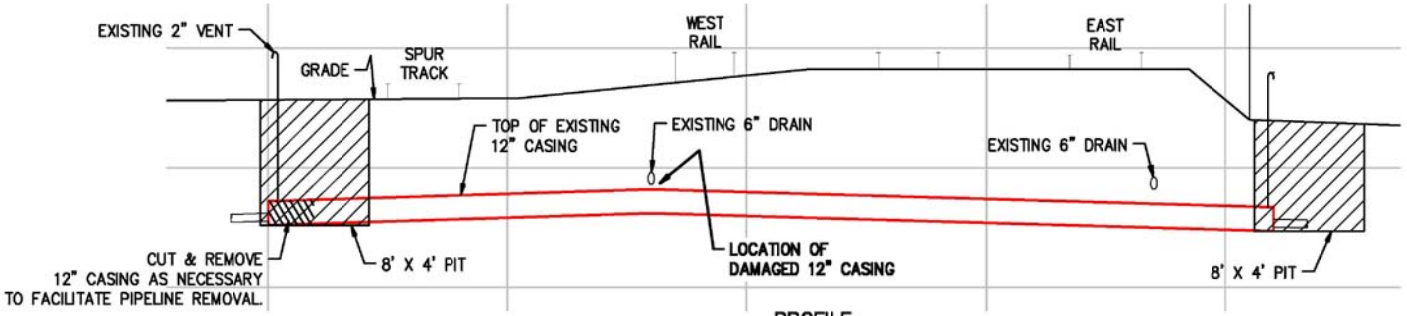
CRIMSON PIPELINE L.P.
2459 Redondo Avenue
Long Beach, California 90806

YOUNGSTOWN LATERAL
PIPE REMOVAL PLAN #1
FIGURE 7

SCALE	AS SHOWN	DATE	5014-EX-904	REV.
DRAWN	RWS	04/11/11		A



PLAN
1"=10'



PROFILE
HORIZ: 1"=10'
VERT: 1"=5'

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2 INCHES, SCALE ACCORDINGLY)
10' 0' 10' 20'

TG: LA 794 H-4
CRIMSON ATLAS SHEET: THUMS 8" A-10114

CONTRACTOR NOTICE

ALL UNDERGROUND UTILITIES OR STRUCTURES REPORTED BY THE OWNER OR OTHERS AND THOSE SHOWN ON THE RECORDS EXAMINED ARE INDICATED WITH THEIR APPROXIMATE LOCATION AND EXTENT. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES OR STRUCTURES SHOWN AND ANY OTHER UTILITIES OR STRUCTURES FOUND AT THE SITE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNERS OF THE UTILITIES OR STRUCTURES CONCERNED BEFORE STARTING WORK. CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. CONTRACTOR AND SUBCONTRACTORS PERFORMING SUBSURFACE EXCAVATIONS SHALL COMPLY WITH ALL REQUIREMENTS OF CALIFORNIA GOVERNMENT CODE SECTIONS 4216.9 PERTAINING TO AN "EXCAVATOR." COMPLIANCE SHALL INCLUDE, BUT NOT BE LIMITED TO, TWO-DAY NOTIFICATION OF THE APPLICABLE REGIONAL NOTIFICATION CENTER AND CONDUCTING ON-SITE MEETINGS WITH ANY OWNER OF A HIGH PRIORITY SUBSURFACE INSTALLATION.

Know what's below. Call before you dig.

SPCC Services, Inc.
17191 Dashard Street
Tarzana Valley, CA 92708
(714) 963-0677

REV NO	DATE	DESCRIPTION OF REVISION	ES NO.	BY	CHK	ELEC ENGR	MECH ENGR	APP	APP	APP
A	04/11/11	ISSUED FOR REVIEW		RWS						

CRIMSON PIPELINE L.P.
2459 Redondo Avenue
Long Beach, California 90806

YOUNGSTOWN LATERAL
PIPE REMOVAL PLAN #2
FIGURE 8

SCALE	AS SHOWN	DATE	5014-EX-903	REV.
DRAWN	RWS	04/11/11		A

3.1.4.3 Removal of Damaged Section of the Crimson Casing under West Rail

1. After the cleaning and inspection of the interior of the casing, a segment of the damaged casing under the west rail french drain will be removed for further inspection and analysis
2. Removal of the damaged section of casing will require the temporary removal of a section of the french drain over the casing. This work will be coordinated with ACTA.

The DOT for Hazardous Liquid Pipelines has authority to investigate damage to pipelines under 49 CFR Part 195. That authority has been delegated to the California State Fire Marshal, Pipeline Safety Division (CSFM). Crimson has discussed procedures for investigating the damage to the pipeline with the CSFM. Crimson has requested that a representative of the CSFM be present during the pipeline removal and may request, with the concurrence of other involved parties, that the CSFM take possession of the pipeline and casing to insure the security of evidence for investigation purposes.

3.1.4.4 Slurry Abandonment of the Crimson Casing

Crimson anticipates that the casing will be formally abandoned at some point following the removal of the damaged casing. Crimson is proposing that the casing be filled with a sand and cement slurry. The abandonment activities will be approved and conducted in conjunction with ACTA and\or other parties involved in the investigation and oil removal.

3.1.5 Quantification of Recovered Oil

Crude oil and water recovered during assessment and remedial activities will be transported using proper DOT shipping documents and tracked to quantify all oil recovered to date.

Any oil/water encountered during the Youngstown Lateral pipeline and casing removal will be managed and quantified as discussed in Section 4.0.

3.2 STUDY, DESIGN, AND IMPLEMENTATION MEASURES TO REMOVAL PETROLEUM CONTAMINATION FROM ALL IMPACTED AREAS

Measures to investigate and remove contamination from impacted areas along the ACTA ROW are described in the following subsections. Due to the limitations of working within the railroad ROW, it is likely that many of the activities may be performed concurrently at different locations throughout the Site. It is Crimson's intent, where practical and safe to do so, to take advantage of access to the ROW in performing work approved under the Project Plan and associated Work Activity Plans. Prior to performing any work, access will be coordinated with ACTA and the railroad(s) and a project schedule submitted to EPA for the proposed work activities.

3.2.1 Source area and Migration Pathway onto ROW

Crimson is in the process of obtaining access or encroachment agreements with ACTA, the railroads and several private property owners. These agreements will be finalized prior to Crimson implementing the Work Activity Plans presented in the Project Plan.

Following removal of the pipeline and portions of the casing, Crimson will assess the area around the excavations for the presence of crude oil in the french drain and ROW that could be an ongoing source for contamination. Where it is practical and safe to perform, any areas with obvious presence of oil contamination will be excavated to remove impacted soils or other materials using onsite excavation equipment. Crimson will attempt to define the full vertical and lateral extent of any oil in the subsurface and to remove all impacted soils. Soil samples will be collected for laboratory analysis in accordance with the SAP to confirm cleanup of the area. Rails and other structures in the area may limit Crimson's ability to excavate without risking potential damage to such structures. Excavated materials will be placed into roll-off bins or other suitable containers, labeled, and transported to the waste management area for management in accordance with Section 4.0 of this Project Plan.

3.2.2 Sediment & Ballast on ROW - Investigation

Since the subject site encompasses a relatively large area along an active transportation corridor, the potential exists for the presence of utility laterals emplaced under the rail system of the ACTA corridor. These laterals or utility trenches may be situated in areas or backfilled with material that may allow lateral migration of crude oil from the source area. Crimson shall contact ACTA for any available records documenting the presence of utilities or subsurface structures that may act as a preferred pathway for crude oil migration proximal to the rail system. Crimson shall review the available data and evaluate the potential for any of the subsurface structures to facilitate crude oil migration. In the event any of these structures exist, Crimson will develop a site Work Activity Plan to further evaluate the area. Crimson will obtain engineering drawings from ACTA on the railroad construction and will meet with ACTA personal to evaluate potential migration pathways with particular interest focused on the french drain system paralleling the rail system.

3.2.3 Subsurface Drainage -Trench / French Drain

In order to design a Work Activity Plan, Crimson is in the process of reviewing recently obtained construction diagrams and details of the french drain system running parallel to and on each side of the existing track systems of the ACTA ROW. As discussed in Section 2.2.2, ACTA conducted a video investigation of the french drain system. A review and evaluation of this video will be completed as part Crimson’s investigation.

3.2.3.1 Areas of Identified Blockages in the French Drain System

All work will be performed under the approval of ACTA and an approved site safety plan. Several areas of the french drain have been identified by ACTA and others as potentially being blocked which may have contributed to a pooling and dispersion of separate crude oil in the french drain system. Crimson will contact ACTA personnel to identify the blocked areas for inclusion in the contamination investigation. ACTA or its contractors will be responsible for addressing any french drain blockages. Crimson will not be performing any repairs, maintenance, or modifications to the french drain system.

The evaluation of these areas and the affects of the blockages will be performed subsequent to oil removal actions and will likely require the free flow of liquid from the french drain system to the collection area. It is Crimson's understanding from the video of the French drain that oil has been present inside of the french drain pipe and may be present in the filter pack around the pipe. Where required, Crimson may request ACTA to expose and remove or repair pipe where blockage are identified.

Depending on field conditions observed during the previous excavations / investigations, a subsurface investigation will be completed in select areas of the french drain system to ascertain the potential for hydrocarbon migration through the crushed rock filter pack, ballast material, and into the underlying soil. The removed rock and gravel will be visually inspected for hydrocarbon impacts. If hydrocarbons are found, the filter fabric, and surrounding gravel pack will be removed and soil samples will be collected adjacent or beneath the french drain. Soil samples will be analyzed for crude oil as discussed in previous sections. Removed material will be replaced with imported clean material.

3.2.4 Shell Lube Plant Parking Lot

The Shell Lube Plant is located approximately 900 feet south of PCH and immediately west of ACTA ROW. The Shell Lube Plant is a petroleum lubricant bottling and storage facility. The northern portion of the property is primarily asphalt pavement. The center of the facility is warehousing and bottling and the southern portion of the facility contains rail car loading and unloading equipment and above ground petroleum storage tanks. Portions of the rail tracks and the rail car loading / unloading areas contain contact water drains for conveyance of surface runoff to an oily water tank.

Crimson contacted the management at the Shell Lube Plant regarding the impact at the Shell Lube Plant. From these discussions, Shell has informed Crimson that the asphalt surface pavement has been cleaned and is free of any oil. Areas of the facility where oil flowed will be investigated for holes, imperfections or alternate paths of oil migration. Facility personnel will be interviewed; visual inspections will be made and documented. A report and recommendations

for any future work required in this area of the project will be provided to EPA upon completion of the investigation.

3.2.5 Shell Lube Plant Storm Water Surface and Subsurface Drainage System

The Shell Lube Plant contains a storm drain catch basin located at the northeast corner of the facility. Portions of the ACTA ROW are situated at higher elevations than the Shell Lube Plant. Surface runoff of oil and water onto the Shell property resulted from a blockage in the french drain system that caused fluid to rise to the surface (Figure 4). The run-off apparently flowed to a storm drain catch basin located at the northeast corner of the Shell Lube Plant. This oil was conveyed through sub-surface piping and flowed into the Shell stormwater retention pond.

The affected catch basins and subsurface piping leading to the retention pond will be investigated to determine if additional clean-up measures need to be conducted. NRC, ACTA and Shell personnel will be involved to determine what exactly was impacted with oil and what additional measures need to occur. A report and recommendations for any future work required in this portion of the project will be provided to EPA upon completion of investigation.

3.2.6 Shell Lube Plant Storm Water Retention Pond

The Shell Lube Plant catch basins for non-contact water drain through subsurface piping to a central storm water retention pond located southeast of the facility. The pond is constructed of concrete covered earthen berms with a permeable earthen bottom. At this time, it is not known how deep the berm interior portion of the concrete capping extends down. The retention pond contains the majority of the Shell Lube Plant's non-contact storm water run-off until it becomes full. The pond is then manually drained and discharged through a valve and drain line situated at the lower elevation of the pond. This discharge is conveyed through an open concrete swale which leads east to the Dominguez Channel.

NRC recovered oil that was present in the pond from the release onto the Shell Lube Plant. NRC currently maintains absorbent boom barriers in several portions of the pond and monitors the pond for the presence of oil.

The retention pond will be investigated to determine if crude oil originating in the french drain remains on the sidewalls and has impacted the bottom of this retention basin. Crimson will continue to work with Shell personal to assess the impact of crude oil migrating from the french drain onto the Shell facility and to maintain oil removal operations during the assessment of the property. A report and recommendations for any future work required in this portion of the project will be provided to EPA upon completion of investigation.

3.2.7 Shell Storm Water Pond Discharge Conveyance to Dominguez Channel

Shells storm water retention pond discharges to a concrete swale and culvert piping that leads east to the Dominguez Channel. This swale gravity drains water to an outfall that discharges to

the channel. Currently it is unknown if any oil traveled through this segment of the site. The discharge piping, concrete swale, culvert and associated piping will be investigated to determine if additional assessment or clean-up measures need to occur in these areas. NRC, ACTA and Shell personnel will be interviewed to determine if any of these areas were impacted with oil. A report summarizing the findings and recommendations for any future work required in this portion of the project will be provided to EPA upon completion of investigation.

3.2.8 ACTA Outfall

The ACTA outfall is located in the northwest corner of the collection area. This 18-in CSP connects laterally upstream to the two french drains that parallel the east and west perimeters of ACTA ROW. A subsurface crossover pipe connects the two french drains systems before attaching to the CSP outfall and draining to a concrete swale (Figure 5). The concrete swale flows south for approximately 225 feet before transitioning to curb and gutter.

Currently, the outfall discharge is captured by a plastic sheeting lined containment and oil recovery system that was constructed at this location in response to the oil release. Crimson will investigate this outfall and adjacent area to determine whether further clean-up and/or remedial actions are necessary.

Crimson and ACTA are presently in discussion regarding the operation and maintenance of the collection and treatment system at the Site. Field activity logs associated with the collection and containment system will be submitted to EPA as required by the Order (EPA, March 2011).

3.2.9 Los Angeles City Storm Water System

The swale transitions to the curb and gutter system (north of E. Opp Street). The system contains several catch basins on the east and west sides of Leeds Ave. and conveys storm water through subsurface piping leading south, to a Los Angeles City sump (wet well) and lift station. The lift station automatically discharges storm water to the Dominguez Channel.

On February 9th, 2011 a work plan was submitted to EPA on behalf of ACTA which described the cleaning of storm drain lines, sump and lift station with a sewer line jetter and or high pressure steam cleaning. This cleaning was apparently performed until wash water was no longer producing oil sheen.

Information received from ACTA and EPA indicates that the Los Angeles city storm water system from the catch basin to the lift station has been cleaned of all oil and that no additional actions are required at this time. Crimson will continue to work with EPA in obtaining documentation to confirm this area is signed off and no further actions are required.

3.3 CONTAMINATION INVESTIGATION PLAN

Work activities previously discussed in section 3.2 may require additional investigation, assessment, and removal of free oil to fulfill the requirements of the Order. Detailed Work Activity Plans will be provided as separate documents to further describe any contamination investigations. The Work Activity Plans for any areas requiring additional assessment will be submitted to EPA for approval prior to commencement of any work.

4.0 WASTE MANAGEMENT

4.1 CONTAMINATED WASTE SAMPLING & DISPOSAL PLAN

Crimson will use the modified DFG Waste Segregation and Quantification Plan (Appendix E) as guidance for waste management.

4.1.1 Management, Inventory and Labeling

Waste containers will be temporarily stored at Leeds Avenue and Grant Street Collection Area (storage area) for the control and security. The fenced area immediately east of Leeds Street will be the primary storage location. Wastes may be temporarily stored near work areas through the Site as work activities are in progress. The wastes will then move moved to the waste storage area as soon as practical for inventory, characterization, and control. All waste material brought into the storage area will be checked for integrity and any discrepancies will be noted on the field log. Any discrepancies will be rectified immediately.

A waste management inventory log will be maintained and will list each container, the container number, the container contents, contact information and accumulation date. Any waste container temporarily stored at a work site must be included on the inventory and its location identified until such time as the container is moved to the waste storage area.

Each container will be labeled with the contents of the container, beginning date of accumulation of waste into the container, and the appropriate contact and shipping information. Labels will be applied to the outside of containers to identify the primary and subsidiary hazards specific to the contents. While the Hazardous Material Regulations include detailed and specific labeling standards for each type of hazardous material and for many kinds of containers and packages, the following requirements are generally applicable to all labels:

- When two or more labels are required, they will be placed / be displayed next to each other;
- Labels must be on a background of contrasting color or have a dotted or solid line outer border;
- Labels will not be obscured by markings or attachments;
- Labels will be durable, weather resistant, and able to withstand the elements for 30 days deterioration or change from exposure to conditions incident to transportation; and
- Labels will be at least 100 mm (3.9 inches) on each side.

The Waste Management Supervisor will be responsible for all wastes generated at the site. All inventories, log sheets, or other relevant materials are to be forwarded to the Supervisor at the end of each work day.

4.2 DISPOSAL FACILITIES

All waste material generated during the clean-up and assessment operations will be placed into DOT approved containers. Upon approval and review of calculations from the DFG OSPR and EPA, Crimson will identify appropriate California Department of Toxics Substance Control (DTSC) approved and permitted Transportation, Storage, and Disposal Facilities (TSDF) or approved recycling facilities. California Health & Safety Code Section 25143.12 is applicable to all oily debris generated on this project. If testing criteria in 40 CFR Section 261 meets specified limitations, solid waste will be sent to a Class 1 Subtitle D Landfill for disposal.

Crude oil impacted soils, sediments & gravel generated from this project will be characterized in accordance with 40 CFR Section 261 and CCR Title 22 Chapter 4.5. Laboratory analytical results for soils and sediments addressed in this Project Plan will be used to characterize and classify this waste stream. Disposal options considered will be agreed upon with the DFG and EPA prior to any off site transport of wastes.

Crude oil generated from this project is a recyclable material and will be placed into Crimson inventories for delivery to end user refineries. Water generated from the decanting of oily water and decontamination operations may be recycled or transported for off-site treatment using proper shipping documents to an approved facility with approval of EPA and DFG.

4.3 TRANSPORT AND DISPOSAL SUMMARY REPORT

Upon completion of field activities a summary report detailing the off-site transportation and disposal destinations of all waste material will be generated and submitted to the Department of Fish and Game, OSPR, for review and disposal approval. The report will become incorporated into the permanent record of field operations and will be available for review to authorized parties.

4.3.1 Summary Volumes

All waste material transported for off-site disposal will be volumetrically inventoried based on the nature of the waste material. Solid waste will be inventoried in US pounds and liquid waste will be inventoried in US gallons. All waste material transported for off-site disposal or recycling will be categorized and classified as outlined in Section 4.1 and 4.2.

4.3.2 Destination of Waste

A summary of the disposal destinations will be provided in the final report. All disposal or recycling facilities will be approved by the DFG and EPA. Disposal documentation, to include signed weight tickets along with transportation documentation will be included with the final report.

5.0 SAFETY

Crimson will prepare site specific health and safety plans for each work location where oil removal and investigation activities occur. Appendix D contains a template of the Site-Specific Health and Safety Plan that will be used. The plan(s) will be prepared and updated daily for the proposed work activities. The Site Health and Safety Officer (SHSO) will have overall responsibility for safety management at the site. All employees will be responsible for safety performance at their particular work station. All subcontractors and visitors to the work site will be required to comply with the site safety plan

A Site-Specific Health and Safety Plan will be prepared for the work areas listed below and will be applicable for continuous use unless modified by the SHSO.

- Collection Area
- Waste Management Area

If working conditions change in these areas, the Site-Specific Health and Safety Plan will be modified to reflect the new conditions.

6.0 REFERENCES

Alameda Corridor Transportation Authority (ACTA), Work Activity - Modification to Shell Source Area, January 31, 2011.

ACTA, Video Taping 8-in Track Storm Drain System in the Texaco Slot Area, February 1, 2011.

ACTA, Work Activity - Modification to Collection and Treatment of Storm Water, February 9, 2011.

ACTA, Work Activity - Removal of Oil from City of Los Angeles Leeds Avenue Storm Drain System and Lift Station, February 9, 2011.

California Regional Water Quality Control Board, Los Angeles Region, Site Assessment & Cleanup Guidebook, May 1996.

CDWR-California Department of Water Resources, Bulletin 118, 2003 Update.

EPA-Environmental Protection Agency United States, Maximum Contaminant Level Goals (MCLGs), Section 40 C.F.R., Part 141. (EPA, February 2011).

EPA, Order for Removal Mitigation or Prevention of a Substantial Threat of Oil Discharge, March 30, 2011.

APPENDIX A
ORDER FOR REMOVAL MITIGATION OR PREVENTION OF A SUBSTANTIAL THREAT OF OIL DISCHARGE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX

IN THE MATTER OF:	
	U.S. EPA Docket
Dominguez Channel Oil Spill	
Latitude: 33.785010, Longitude: -118.2372450	No. OPA CWA 311-09-2011-0002
Wilmington, Los Angeles Co., CA.	
Crimson Pipeline Management Company, Respondent	ORDER FOR REMOVAL, MITIGATION OR PREVENTION OF A SUBSTANTIAL THREAT OF OIL DISCHARGE
Proceeding Under Section 311(c) of the Federal Water Pollution Control Act, 33 U.S.C. § 1321(c)	

I. AUTHORITY

1. This Order for Removal, Mitigation or Prevention of a Substantial Threat of Oil Discharge, EPA Docket No. OPA 311-09-2011-0002 (the "Order"), is issued pursuant to the authority vested in the President of the United States by Section 311(c) of the Clean Water Act, 33 U.S.C. § 1321(c), as amended ("CWA"). This authority has been delegated to the Administrator of the United States Environmental Protection Agency ("EPA") by Executive Order No. 12777, 58 Federal Register 54757 (October 22, 1991), and further delegated to the Regional Administrator by EPA Delegation No. 2-89 and to EPA Region 9 On-Scene Coordinators by Regional Order R9 1250.30 (September 30, 1997).

2. EPA issues this Order to the Crimson Pipeline Management Company (referred to herein as "Crimson," or the "Respondent"). This Order provides for the performance of a removal

action in connection with the discharge of oil into the Dominguez Channel and the City of Los Angeles storm water management system, approximately 3000 meters north of the intersection of East Anaheim Street and North Henry Ford Avenue, Wilmington, Los Angeles County, California (the "Site"). This Order requires Respondent to immediately conduct response actions to remove, mitigate or prevent a substantial threat from the discharge of oil or hazardous substances into or on navigable waters or adjoining shorelines.

II. PARTIES BOUND

3. This Order applies to and is binding on Respondent, and Respondent's directors, officers, employees, agents, receivers, trustees, successors, parent company, subsidiaries and assigns. Any change in ownership or corporate status of Respondent, including, but not limited to, any transfer of assets or real or personal property shall in no way alter Respondent's responsibilities under this Order.

III. DEFINITIONS

4. Unless expressly stated otherwise, terms used in this Order shall have such meaning as may be defined in Section 311(a) of the CWA, 33 U.S.C. § 1321(a).

5. "Order" shall mean this Order for Removal, Mitigation or Prevention of a Substantial Threat of Oil Discharge, EPA Docket No. OPA 311-09-2011-0002, and any documents incorporated herein pursuant to paragraph 16 of this Order.

6. "Day" shall mean a calendar day unless expressly stated to be a working day. "Working day" shall mean a day other than a Saturday, Sunday, or federal holiday.

IV. FINDINGS OF FACT AND VIOLATIONS

7. Crimson is a corporation authorized to conduct business in California. Its corporate address is 410 17th Street, Ste. 1010, Denver, Colorado (80202). Its agent for service in California is Michael Purdy, 17731 Millux Road, in Bakersfield, California (93311).

8. On December 21, 2010, the National Response Center ("NRC") received an incident notification

(NRC Report #962833) of a large sheen coming from the Dominguez Channel near Wilmington, California. Dominguez Channel is a stream in southern Los Angeles County that empties into the East Basin of the Port of Los Angeles and the Pacific Ocean. It was observed that the oil entered the channel from the outfall of a City of Los Angeles storm water pump station. Oil entered the storm water management system from an outfall of the Alameda Corridor Transportation Agency ("ACTA") railroad right-of-way storm water drainage system. Oil was also observed migrating from the ACTA railroad right-of-way onto the Shell Lubricants facility, approximately 0.45 miles up gradient to the north. Oil from this expression migrated with storm water into the Shell Lubricants facility storm water retention basin. The flow of oil from the apparent source area is intermittent and related to rain events that cause flow in the storm water systems. The Dominguez Channel is within the definition of navigable waters of the United States and adjoining shorelines for the purpose of the Section 311 of the Clean Water Act, 33 U.S.C. § 1321. The presence of oil from the discharge is a substantial threat of the continued release of oil into or on navigable waters or adjoining shorelines to navigable waters. Analysis of samples collected in the course of responding to the December 21, 2010 discharge demonstrates via hydrocarbon "fingerprint" analysis that the oil originated from the Crimson operated THUMS crude pipeline located on the Tesoro Refinery at 1930 E. Pacific Coast Hwy, in Wilmington, California (90744). A physical pathway of oil discharge has been established via a 4 inch pipeline, the "Youngstown lateral," which connects to the THUMS pipeline and crosses the ACTA railroad right-of-way.

9. The work to be performed pursuant to this Order is in accordance with the National Contingency Plan, 40 C.F.R. Part 300, and any appropriate Regional or Area Contingency Plan, and is necessary to ensure the effective and immediate removal, mitigation, or prevention of a substantial threat from a discharge of oil or hazardous substance.

V. ON SCENE COORDINATOR and PROJECT COORDINATOR

10. Jason Musante, an employee of EPA Region 9, shall be the primary On Scene Coordinator

("OSC") and shall have the authorities, duties, and responsibilities vested in the OSC by the National Contingency Plan, 40 C.F.R. Part 300. The OSC's authority includes, but is not limited to, the authority to halt, modify, conduct, or direct any tasks required by this Order. Within one (1) day of the Effective Date of this Order, Respondent shall designate a Project Coordinator who shall be responsible for overseeing Respondent's implementation of this Order. Respondent's notice of designation shall include an address and telephone number for Respondent's Project Coordinator. To the maximum extent possible, all oral communications between Respondent and EPA concerning the activities performed pursuant to this Order shall be directed through the OSC and Respondent's Project Coordinator.

VI. WORK TO BE PERFORMED

11. Respondent shall follow the terms set forth in this Order and perform the work as required in this Order.

12. Respondent shall ensure that oil from the pipeline leak or in the rail road right-of-way drainage system and surrounding property does not enter into navigable waters, tributaries or adjacent shorelines. Respondent shall take all necessary steps to remove the Site discharge or threat of discharge of oil into such waters or adjacent shorelines from the, including the removal of soils contaminated with petroleum hydrocarbons.

13. In accordance with Paragraph 14 of this Order, Respondent shall propose necessary corrective action measures to complete the removal action for the Site to ensure that there is no longer a substantial threat of a discharge of oil into the environment. Respondent shall perform the actions as approved by EPA in accordance with the process for approval stated in Paragraph 17 of this Order.

14. Within fourteen (14) days after the Effective Date of this Order, Respondent shall submit to EPA for approval a Work Plan to perform the work required by this Order. The Work Plan shall provide a concise description of the activities to be conducted to comply with the requirements of this paragraph, including those addressed below. The Work Plan shall include:

a. The study, design and implementation of immediate measures to halt the discharge of oil into the environment.

b. The study, design and implementation of measures to clean up and remove all oil and petroleum contamination at all impacted areas of the Site, including but not limited to: (a) the location of the spill origin; (b) the migration pathway into the railroad right of way; (c) contaminated soil; (d) sediment and ballast on the railroad right of way; (e) the railroad subsurface drainage system; (f) the impacted parking lot at the Shell Refinery; (g) the surface and subsurface drainage system at the Shell Refinery; (h) the storm water management pond at the Shell Refinery; and (i) any discharge points to from the Shell Refinery to the Dominguez Channel.

c. The proper identification of and means of disposal for waste generated during the response to this incident, with a means to determine the quantity of petroleum in each waste stream. Quantification methods must be approved by the California Department of Fish and Game, and consistent with its methodology for oil spill quantification.

d. A Quality Assurance Project Plan ("QAPP") that is consistent with EPA Guidance for Quality Assurance Project Plans (EPA QA/G-5); Sampling and Analysis Plan Guidance and Template, Version 2 Private Analytical Services Used (Document Control No.: R9/QA 002 - March, 2000); and Guidance for the Data Quality Objectives Process (EPA QA/G-4).

e. Schedules for implementing and completing all tasks described within the Work Plan.

f. A Health & Safety Plan, prepared in accordance with EPA's Superfund Standard Operating Safety Guide, dated June 1992, which complies with all current OSHA regulations applicable to HAZWOPER (29 CFR 1910.120(b)(4)). Respondent shall incorporate all changes to the Health & Safety Plan recommended by EPA and implement

the Health & Safety Plan throughout the performance of the removal action. No work can proceed without EPA approval of the Health and Safety Plan.

15. All work performed by or on behalf of Respondent pursuant to this Order shall be performed by qualified individuals or contractors with expertise in oil or hazardous waste site investigation or remediation, unless agreed otherwise by EPA. Respondent shall, within three (3) working days after the Effective Date of this Order, notify EPA in writing of the name(s) of any contractor(s) or subcontractor(s). The qualifications of the persons, contractors, and subcontractors undertaking the work for Respondent shall be subject to EPA review and approval. All persons, contractors, and subcontractors undertaking the work for the Respondent shall provide proof of compliance with the requirements within the Hazardous Waste Operations and Emergency Response ("HAZWOPER"), 29 C.F.R. Part 1910, including as follows:

The corporate written safety and health program plan pursuant to 29 C.F.R. § 1910.120(b)(1);

a. Proof of 40-hour initial training and current 8-hour refresher training pursuant to 29 C.F.R. § 1910.120(e);

b. Proof of medical surveillance pursuant to 29 C.F.R. § 1910.120(f);

c. The written personal protective equipment program pursuant to 29 C.F.R. § 1910.120(g)(5);

d. The written respiratory protection program pursuant to 29 C.F.R. § 1910.120(c); and

e. Provide documents in the primary language of all employees working on-Site. Failure to provide the proof of compliance with HAZWOPER documentation may result in EPA's disqualification of that contractor.

16. Respondent shall send the Work Plan and all notices required by this Order to:

Jason Musante, OSC
Environmental Protection Agency
2445 N. Palm Drive, Ste. 100
Signal Hill, CA 90755

(213) 479-2120
musante.jason@epa.gov

17. The Work Plan shall be reviewed by EPA, which may approve, disapprove, require revisions, or modify the Work Plan. EPA may consult with other interested agencies when considering the Work Plan, including federal, state and local agencies. If EPA requires revisions, Respondent shall submit a revised draft Work Plan within two (2) days after receipt of EPA's notification of the required revisions. Once approved, the Work Plan shall be deemed to be incorporated into and made a fully enforceable part of this Order. Within one (1) day after EPA approves of the Work Plan or any portion of the Work Plan or other work specified by this Order, Respondent shall begin implementation of the approved work.

18. Respondent shall perform the work necessary to complete the task(s) in this Order in accordance with the National Contingency Plan, 40 C.F.R. Part 300, and shall comply with the schedules specified in this Order and in the Work Plan submitted pursuant to Paragraph 14.

19. Respondent shall notify EPA of any field work being conducted in accordance with this Order at least one (1) day prior to work being performed.

20. Respondent shall notify EPA of any proposed response actions that are not described in this Order at least three (3) days prior to undertaking such actions.

VII. RESERVATION OF RIGHTS AND PENALTIES

21. This Order shall not preclude EPA from taking any action authorized by the CWA or any other applicable law. EPA reserves the right to direct all activities, and to comment on and direct off-Site shipping and disposal and all other matters related to the response action directed by this Order. Furthermore, nothing herein shall prevent EPA from seeking legal or equitable relief to enforce the terms of this Order or from taking any other legal or equitable action as it deems appropriate and necessary, or to require the Respondent in the future to perform additional activities pursuant to the CWA or other applicable law.

22. Violation of any term of this Order or oral direction from EPA may subject Respondent to an administrative civil penalty of up to $37,500 per day of violation or an amount up to three times the costs incurred by the Oil Spill Liability Trust Fund as a result of such failure under Section 311(b)(7)(B) of the CWA, 33 U.S.C. § 1321(b)(7)(B).

VIII. REPORTING REQUIREMENTS

23. Respondent shall submit daily progress reports to EPA until all actions required by this Order are complete, unless otherwise directed in writing by EPA. These reports shall describe all significant developments during the preceding period, including work performed and any problems encountered, analytical data received during the reporting period, treatment and disposal information and developments anticipated during the next reporting period, including a schedule of work to be performed, anticipated problems, and planned resolutions of past or anticipated problems. The OSC may require more frequent reports when the activities at the Site warrant a higher reporting frequency.

24. Within thirty (30) days after completion of the actions required under this Order, the Respondent shall submit for EPA review and approval a final report summarizing these actions. The final report shall conform, at a minimum, with the requirements stated in 40 C.F.R. § 300.165 ("OSC Reports"). The final report shall include a good faith estimate of total costs incurred in complying with the Order, a listing of quantities and types of materials removed off-site or handled on-site, a discussion of removal and disposal options considered for those materials, a listing of the ultimate destinations of those materials, a presentation of the analytical results of all sampling and analyses performed, and accompanying appendices containing all relevant documentation generated during the removal action (e.g., manifests, invoices, bills, contracts, and permits). The final report also shall include the following certification signed by a person who supervised or directed the preparation of that report:

> Under penalty of law, I certify that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of the report, the information submitted is true,

accurate, and complete. *I am aware that under section 309(c)(4) of the CWA, 33 U.S.C. § 1319(c)(4), there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

25. The Respondent shall provide EPA representatives access to the Site. The Respondent also shall provide EPA representatives access to all records and documentation related to the release or threat of release at the Site or to Respondent's implementation of this Order. Nothing in this Order limits or otherwise affects EPA's right of access and entry pursuant to applicable law, including the CWA, the Resource Conservation and Recovery Act, 42 U.S.C. § 6901 et seq., and the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. § 9601 et seq.

26. Where work under this Order is to be performed in areas owned by or in possession of someone other than the Respondent, Respondent shall use its best efforts to obtain all necessary access agreements. Best efforts, as used in this paragraph, shall include the payment of reasonable compensation in consideration of granting access. The Respondent shall immediately notify EPA if it is unable to obtain such agreements. EPA may then assist the Respondent in gaining access using such means as EPA deems appropriate. EPA reserves the right to seek reimbursement from the Respondent for all costs and attorney's fees incurred by the United States in obtaining access for the Respondent.

IX. REIMBURSEMENT OF OVERSIGHT COSTS

27. Respondent may be liable to reimburse the United States, on written demand, for all response costs paid by the United States and incurred in response to the release of oil described in this Order, unless otherwise exempted from this requirement by federal law. The United States may submit to Respondent on a periodic basis a bill for all response costs so incurred by the United States. The Respondent also may be liable to reimburse local and state agencies for respective costs incurred during the response to the release of oil described in this Order.

X. EFFECTIVE DATE

28. The Effective Date of this Order shall be the date of the receipt of this Order by the Respondent.

for

3/30/11

Jason Musante
On-Scene Coordinator
U. S. Environmental Protection Agency
Region IX

Date

APPENDIX B
SAMPLING AND ANALYSIS PLAN/QUALITY ASSURANCE PROJECT PLAN

SAMPLING AND ANALYSIS PLAN/ QUALITY ASSURANCE PROJECT PLAN

Dominguez Channel Oil Spill
Wilmington, California

Prepared for:
U.S. EPA Region IX

Prepared by:
Crimson Pipeline L.P.
2459 Redondo Avenue
Signal Hill, California 90755

May 3, 2011

SAMPLING AND ANALYSIS PLAN/ QUALITY ASSURANCE PROJECT PLAN
Dominguez Channel Oil Spill
Wilmington, California

Table of Contents

1.0 Introduction

This Sampling and Analysis Plan (SAP) is intended to document the procedural and analytical requirements for the investigation and removal of the Crimson Pipeline crude oil pipeline release that resulted from a crude oil discharge from Crimson Pipeline's 4-in pipeline the "Youngstown Lateral", which connects to the THUMS 8-in pipeline and crosses the ATCA railroad right-of-way north of Pacific Coast Highway in Wilmington, California. This SAP covers the area surrounding the Youngstown Lateral pipeline, the french drain system of the Alameda Corridor Transportation Agency (ACTA) Right-of Way (ROW) and Shell Lube Plant south of the oil pipeline release, and continuing to the storm water collection and treatment system located near the intersection of Leeds Avenue and Grant Street (hereafter referred to as "the Site"). This SAP was prepared by Crimson Pipeline (Crimson), as required by the U.S. Environmental Protection Agency, Region IX (EPA) *Order for Removal, Mitigation or Prevention of a Substantial Threat of Oil Discharge,* EPA docket number CWA 311-9-2011-0002, Section VI, No. 14. In general, the SAP combines the basic elements of a Quality Assurance Project Plan (QAPP) and a Field Sampling Plan (FSP). The following subsections in this introduction provide the site name and location, responsible agencies, and project organization.

The remainder of the SAP includes sections providing reference; data quality objectives (DQOs); sampling rationale; request for analyses; field methods and procedures; sample collection, handling, procedures, sample containers, preservation, and storage; disposal of residual materials; sample documentation and shipment; quality assurance/quality control (QA/QC); field variances; and field health and safety procedures.

1.1 SITE NAME

The Site will be referred to as the "Dominguez Channel Oil Spill". Crude oil from the pipeline lease was discharged into the Dominguez Channel and the City of Los Angeles storm water management system. The discharge of oil into the Dominguez Channel was located approximately 3,000 feet north of the intersection of East Anaheim Street and North Henry Ford Avenue, Wilmington, Los Angeles County, California (the "Site") (see Figure 1 of the Project Plan).

1.2 SITE LOCATION

The Site or spill area includes the area affected by a sheen coming from the Dominguez Channel near Wilmington, California. The Dominguez Channel drains approximately 110 square miles of the Dominguez Watershed and is constructed as rip rap flood control channels near the Site. The Dominguez Channel is an intertidal zone where water from drainages in southern Los Angeles County empties into the East Basin of the Port of Los Angeles and the Pacific Ocean.

1.3 RESPONSIBLE AGENCIES

The EPA is the oversight agency for spill cleanup activities. Other agencies include the California

Department of Fish and Game (CDFG), California Department of Water Resources (CDWR), and California Pipeline Safety Division (CPSD). The Unified Command for this incident is the EPA, CDFG, and Crimson.

1.4 PROJECT ORGANIZATION

The project organization is outlined in the Dominguez Oil Spill Project Plan. Titles/responsibilities, names, and telephone numbers for the immediate EPA, Crimson Managers and its contractors are provided below. Parties involved in the activities described herein, including the EPA, Crimson, and its consultants and contractors are listed in Table 1.

TABLE 1
Key Project Personnel

Title/Responsibility	Contractors	Name	Phone Numbers	
			Office	***Cell***
EPA Project Manager (OSC)		Jason Musante		213-479-2120
Crimson Pipeline VP/Project Coordinator	Crimson Pipeline Management Company	Larry Alexander	562-595-9216	949-922-9895
Project Consultant	Beacon Energy Inc.	Mark Reese P. G.	562-997-3087	714-624-5301
California Department of Fish & Game (OSPR) Lieutenant		Bryan Gollhofer	562- 342-7214	562-708-7757
California Department of Fish & Game (OSPR) Biologist		Cory Kong	562- 342-7214	562-477-7081
California Department of Fish & Game (OSPR)		James Foto	562- 342-7214	562-598-4292
Waste Management Supervisor	WGR Southwest Inc.	Bill Senner	562-799-8510	310-629-5260
Removal Coordinator	WGR Southwest Inc.	Graydon Martz P.G.	562-799-8510	310-629-5261
Project Engineers	Stantec Consulting Corp.	Kevin K. Miskin, P.E.	909-335-6116	909-224-3406
Investigation Coordinator	Stantec Consulting Corp.	Jim DeWoody	909-335-6116	951-403-4623
Quality Assurance (QA) Officer	Stantec Consulting Corp.	James Kerr, P.G.	970-879-3250	303-884-7125
Laboratory QA Officer	Test America Laboratory	Lena Davidkova	949-261-1022	
Environmental Compliance GIS Drafter	Beacon Energy Inc.	Valerie Muller	562-997-3087	310-809-3918

2.0 Background

On December 21, 2010 the discharged oil entered the channel from the outfall of a City of Los Angeles storm water pump station. The oil entered the storm water management system from an outfall of the Alameda Corridor Transportation Agency ("ACTA") railroad right-of-way storm water drainage system. Oil was also observed migrating from the ACTA railroad right-of-way onto the Shell Lube Plant, approximately 0.45 miles up gradient to the north. The discharged oil migrated with storm water into the Shell Lubricants facility storm water retention basin. The flow of oil from the apparent source area is intermittent and related to rain events that cause flow in the storm water systems.

Following initial response actions, the EPA issued an *Order for Removal, Mitigation or Prevention of a Substantial Threat of Oil Discharge,* U.S. EPA docket number CWA 311-9-2011-0002 (hereafter "order"), to guide final cleanup activities at the Site. This SAP was prepared in compliance with the requirements in the order.

2.1 SITE AREA DESCRIPTION

The site is located at Latitude: 33.7825010, Longitude: -118.2372450 in the city of Wilmington, Los Angeles County, California. Land use in the surrounding area is industrial, with refinery facilities and trucking being the main operations. Owners of impacted properties include the City of Los Angeles Department of Public Works Bureau of Sanitation (LA DPW), Shell Lubricants (Shell), and the Alameda Corridor Transportation Authority (ACTA). LA DPW operates a stormwater lift station at the coordinates listed above. Shell operates the Los Angeles Lube Plant, located at 1926 East Pacific Coast Highway. ACTA operates a railroad right-of-way (ROW) that runs through the ports of Long Beach and Los Angeles, primarily along and adjacent to Alameda Street (EPA Dominguez Channel website).

2.2 CONTAMINANTS OF CONCERN – PREVIOUS INVESTIGATIONS

Based on previous investigations of crude oil spill, the general constituents of potential concern (COPC) consist of Total Extractable Petroleum Hydrocarbon (TEPH), Volatile Organic Compounds (VOCs), and Semi Volatile Organic Compounds (SVOCs). The actual COPC will be indentified based on laboratory data provided by the EPA, ACTA and Crimson.

3.0 Project Data Quality Objectives

This section of the SAP describes the procedures by which the accuracy and validity of sample and data generated during the assessment, remediation and post remediation sampling and analysis of soil and surface water will be maintained. The following subsections describe the project task and problem definition, DQs, DQLs, data review and validation, data management, and assessment oversight associated with this project.

3.1 PROJECT TASK AND PROBLEM DEFINITION

The purpose of the SAP is to provide guidance for soils and surface water sampling and analysis in the Site area during the following investigation and contamination removal phases:

Prevent Oil Discharge—Data will be collected to evaluate the limits of impacts resulting from the pipeline spill and to mitigate further discharge from the Site.

Source Removal—Data collected during removal will be used to assess the efficacy and limits of removal actions, segregate impacted and clean media, beneficial reuse and/or recycling of the various affected media.

Post removal confirmation sampling and monitoring— To confirm the efficacy of removal activities data will be required at the completion of remediation operations.

3.2 DATA QUALITY OBJECTIVES (DQOS)

The data quality objectives for this project are to:

- Assess the limits of crude oil impact to soil and surface water
- Assess concentrations of COPCs at levels below applicable relevant and appropriate requirements (ARARs).
- Differentiate concentrations of COPCs above reference levels in soil and surface waters where reference concentrations may exceed applicable regulatory limits.
- Identify chemicals of concern from data collected during the investigation phase of removal actions.
- Evaluate efficacy of removal actions through verification and confirmation sampling.

The precision, accuracy, representativeness, comparability, and completeness (DQIs) of the laboratory data will be assessed to determine the overall quality of the data. The QA objectives for precision, accuracy, and completeness of each measurement parameter are based on prior knowledge of the analytical method, the method validation studies (using replicates, standards, spikes, calibrations, recovery data), and the requirements of the specific project. Definitions of these parameters and the applicable quality control procedures are described below.

3.3 DATA QUALITY INDICATORS (DQIS)

The data will be evaluated against the following parameters:

Precision measures the reproducibility of measurements under a given set of conditions. Specifically, it is a quantitative measure of the variability (precision) of two or more measurements compared to their average values. Precision is calculated from results of duplicate sample analyses. The duplicate samples will consist of one or more of the following: co-located samples, field blind replicates,
analytical laboratory replicate, and/or laboratory instrument replicate. Precision is quantitatively expressed as the relative percent difference (RPD), and is calculated as follows:

RPD = [(C1-C2)/(average of C1 and C2)] x 100

Where:

RPD = relative percent difference
C1 = larger of the two duplicate results
C2 = smaller of the two duplicate results

Laboratory duplicates will be analyzed at a frequency determined by the laboratory as described in Attachment A of the SAP. Field duplicates will be collected at a rate of 5 percent and analyzed for site specific constituents of concern (COCs). The criteria for acceptable precision as determined by laboratory are attached in Attachment A. In addition, Crimson will submit blind duplicate water and soil samples to the laboratory for quantification and comparison. All duplicate samples will be analyzed for site-specific COCs. Following collection of samples for VOC analysis, the soil samples will be homogenized and split in the field for analysis of nonvolatile or extractable constituents.

Accuracy is a measure of the closeness (bias) of the measured value to the true value. The accuracy of test results can be assessed by analyzing a reference material, third party performance evaluation samples, or "spiking" samples in the laboratory with known standards (surrogates or matrix spikes) and determining the percent recovery (%R). The frequency of matrix spike analysis will be determined by the laboratory. The acceptance criterion is specific for the analyte. The %R for the laboratory for each analyte is provided in Attachment A.

Representativeness is a qualitative measure of how closely the measured results reflect the actual concentration or distribution of the constituent concentrations in the matrix sampled. The sampling plan design, sampling collection techniques, sample handling protocols, sample analysis methods, and data review procedures have been developed to assure the results obtained are representative of on-site conditions at the time of sample collection.

Completeness is defined as the percentage of measurements judged to be valid. Results will be considered valid if they are not rejected during data validation (see Page 8). The target completeness goal for this work will be 90 percent for a given analysis.

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. The use of standard regulatory methods and procedures for both sample collection and laboratory analysis will make data collected comparable to both internal and other data generated.

Detection Limits or laboratory reporting limits are specified in the laboratory QA/QC documentation in Attachment A. These limits must be sufficiently low to allow assessment of the data against the DQOs. Where these limits are raised due to matrix or chemical interferences, or elevated concentration, the dilution factor will be documented on the analytical report form.

Data Turn Around Time (TAT) is the time it takes the laboratory to return data to the decision makers from the time that the laboratory receives the data. In order to facilitate the decision making process in the field, the TAT used on this project will not exceed 5 days.

3.4 DATA REVIEW AND VALIDATION

The QA Manager will review the laboratory QA/QC data to determine whether the data meet the above DQO/DQI objectives. In the event that the criteria are not met, the impact to data quality will be evaluated and a determination will be made as to the need for resampling and/or reanalysis. Any data that falls outside the QA/QC criteria or cannot be validated will be flagged in the text and tables.

3.5 DATA MANAGEMENT

Data management will entail the following to ensure accurate transfer of data from collection to analysis:

- Use of standardized forms that include field notes, field data sheets, chain-of-custody forms, and sample labels.
- Proof reading of notes and data as a check against transportation errors.
- Review of field notes and data by the QA Manager for completeness and consistency.
- Review of analytical data by the QA Manager as indicated in Section 3.4 above.
- Review of final report by the Project Manager.

4.0 Sampling Rationale

It is well documented that detectable COPC concentrations exist at the Site in the soil media as a result of other sources unrelated to the Dominguez Spill. Investigation soil samples directly related to the Dominguez Spill will be compared to crude oil samples from the THUMS and Youngstown pipelines. These investigational and crude oil samples will be used to identify the COPCs related to the Dominguez Spill. Soil contamination unrelated to the Dominguez Spill will not be investigated by Crimson. The unrelated contamination results will be forward to the EPA or other regulatory agency, as appropriate.

Crimson will collect and analyze crude oil samples from the Youngstown production which is transported in the Youngstown Lateral pipeline and crude oil from the THUMS 8-inch pipeline. As these oils are cited by the EPA as possible sources of oil in the release, the hydrocarbon "fingerprint" analysis will be used to identify "marker" sources by which comparison will be made.

Soil and water samples will be collected for the purpose of evaluating the limits of crude oil impact, to assess the efficacy of removal operations and to evaluate waste materials for disposal or reuse/recycling, as appropriate.

Investigation sampling will generally be biased high to identify the limits of impact and worst-case conditions, while confirmation and waste characterization samples will be collected randomly and based on statistical testing. The sampling rationale presented herein has as its basic goal the intent of identifying COCs, characterizing areas of concern (AOCs) within the Site where COCs exceed removal goals, and evaluating residual concentrations at the completion of removal activities.

As identified in the Project Plan, general COPCs consist of TEPH, VOCs, and SVOCs. Actual VOC and SVOC analytes of concern will be determined in the investigation phase. To determine which COPCs will be carried forward as COCs, data collected during investigation will be compared to reference concentrations and removal goals. In addition, statistical evaluations will be performed using the methods set forth in EPA SW-846 to evaluate whether a specific COC may be used as a surrogate for cleanup and confirmation of other analytes. Experience has shown at many crude oil sites that TEPH may be used as a surrogate for cleanup for VOCs and SVOCs. The surrogate COC will be selected based on statistical analysis of investigation data. Although a surrogate may be selected to guide removal actions, 10 percent of final confirmation samples will be analyzed for all COCs.

In soil, TEPH will likely be used as the primary surrogate for evaluating removal activities, with secondary criteria based on concentrations of monoaromatics (benzene, toluene, ethylbenzene and total xylenes) and polycyclic aromatic hydrocarbons (PAHs). The removal criteria for TEPH, VOC, SVOCs and monoaromatics are from the regional screening levels (RSLs) published by the EPA Regional IX.

Contaminated soil will be removed that do not jeopardize structural integrity of building, roadways, ACTA railroads, utilities or other assets. The operational goal is the removal of all "free oil" (phase-separated oil) and soil impacted above the Site's removal goals. The Site removal goal values represented in the Project Plan are for contaminants related to the industrial soil. The proposed quantitative removal goal for TEPH will be 10,000 milligrams per kilogram (mg/kg) in soil. Until such time as TEPH can be established as the surrogate COC for removal activities, the following preliminary removal goals will be used at the Site for aromatics and naphthalene, based on the EPA Region IX RSL.

Benzene	5.4 mg/kg
Toluene	45,000 mg/kg
Total Xylenes	2,700 mg/kg.
Naphthalene	18 mg/kg

Quantification and reporting of TEPH will be full carbon chain ranges of <C12, C13 to C22 and C23 to C44.

Investigation and confirmation sampling and analysis will allow data evaluation consistent with these goals and action levels.

4.1 INVESTIGATION SAMPLES

The objective of investigation as previously stated is to assist in the identification of COCs, identify AOCs, evaluate the extent of impacts in soil and surface water to the degree possible, and to facilitate the selection of removal actions.

During investigation, much of the assessment will be based on visual evidence of oil within the ballast, french drain fabric and gravel pack and entrained in the soil matrix, field PID measurements for VOCs, as well as laboratory sample analyses. Investigation samples will be collected for field assessment and laboratory analyses with the focus on evaluating COPCs and identifying vertical and lateral extent of AOCs where removal action is required.

To assess COPCs a sample of fresh crude oil from the THUMS pipeline, Youngstown pipeline, and a sample of weathered crude oil from the spill area will be collected and analyzed for the following constituents:

Total Extractable Petroleum Hydrocarbons (TEPH-carbon chain)	EPA method 8015B
Volatile Organic Compounds (VOCs)	EPA method 8260B
Semi-VOCs (SVOCs)	EPA method 8270C
CA Title 22 Metals	EPA method 6010B

The results of the fresh crude oil and weathered oil will be compared and submitted under one cover letter. This investigation data will be used to assess COCs (other than TEPH) for removal action. Any analyte exhibiting concentrations above cleanup goals will be added to the COC list for characterization. At this point, COPCs are expected to consist of at least TEPH and BTEX.

The following decisions will be used to guide investigation:

- If liquid oil is encountered, then the area will be designated for removal action of visible oil and free oil entrained in soil.
- Investigation will be guided largely by visual observation and PID readings.
- The quantification and identification of COCs will be determined by collecting a few samples from the Youngstown Lateral, Shell Lube Plant, and/or french drain area. The number of samples collected will be determined in the field and will be based on available video tape information, visual evidence of oil in the ballast material, etc.
- If reported COPC concentrations exceed the removal goal in the deepest or perimeter samples collected at each location, additional step out or deeper samples may be collected to determine the extent of impact. A determination will be made in the field, as to the feasibility and necessity of step out and deeper sampling.

The sample locations will be determined in the field at the time of investigation. All sample locations will be pre-approved by the EPA prior to sampling.

The following paragraphs describe the sample rationale for investigation samples.

4.1.1 Soil Investigation Samples

Soil samples will be collected from safely accessible areas of the railroad right-of-way, the french drain system, and from the areas adjacent to railroad ROW and pipeline. Soil samples will be collected from the french drain system using manual sampling methods that will include spades and hand augers. Additional soil samples may be collected from the railroad ROW and french drain system using other suitable methods. Samples collected for VOC analysis will collected in accordance with EPA method 5035. Soil sample locations will be determined based on visual evidence of gravel impact and previous knowledge of subsurface impact.

The exact locations of soil borings will be determined during the investigation phase and upon review of the video tape from the 8-inch track storm drain system. The following locations along the spill area will be investigated:

Youngstown Lateral Pipeline—as part of the incident investigation, approximately 90 feet of pipeline will be removed in sections of undetermined length dependent upon access provided by the adjacent property owners. Soil excavation and shoring will be required at both ends of

the Youngstown Lateral as part of the pipeline removal (Figure 3 of Project Plan). Any impacted soil will be removed from the excavation and disposed of offsite as part of the source removal. Soil samples at each end of the removed pipeline will be advanced to confirm the vertical and lateral limits of impact surrounding the damaged casing. Soil samples will be collected where safely accessible as described below.

- Where visually impacted by crude oil, soil samples will be collected from the sidewalls and bottom of the excavation once the visually impacted soil has been removed. Photo documentation and reference point will be used to identify the location of visual free oil.
- Based on safely concerns, soil samples within the excavation may be collected directly from the bucket of the excavation equipment. One soil sample every 10 linear feet will be collected from the centerline of the excavation.
- One soil samples every 10 linear feet of the perimeter edge will be collected from the sidewall of the excavation.
- Bottom soil samples will be collect 0.5 feet and 3 feet below the visual extent of impact from the excavation (if impact is evident, deeper samples will be attempted).
- Sidewall samples will be collected 0.5 feet and 3 feet beyond the visual extent of impact from the excavation sidewall (if impact is evident, deeper samples will be attempted).
- Sample locations and depths may be modified and will be determined by encountered field conditions.
- Where the bottom or sidewall of the excavation consists of exposed ballast material or gravel, no sample will be collected and a visual assessment will be conducted to ascertain the need for removal based on evidence of free oil.
- All visually impacted soil will be removed to the limit of excavation necessary to install the engineered shoring unless liquid free oil is identified. If free oil is present, the excavation equipment may be used to remove all accessible soil to practical lateral and vertical extent.
- Due to the safely concern associated with the ROW, there exist the possibility that some impacted soil may not be removed or sampled. Approval from EPA and ACTA to leave impacted soil in-situ may be requested based on the location of the soil.

Shell Lube Plant – The Shell Lube Plant property is primarily asphalt pavement (Figure 2 of Project Plan). Confirmation with the Shell Lube Plant has determined that the asphalt surface pavement has been cleaned and is free of any oil. Investigation soil boring in non-asphalt areas will occur if there are indications of impact from crude oil. A Work Activity Plan and recommendations for any future work required in this portion of the project will be provided to EPA upon completion of investigation.

Soil samples will be collected from safely accessible areas of the Shell Lube Plant that present evidence of crude oil contamination. All boring or other sampling locations must be approved in advance of sampling activities by Shell. Soil samples will be collected from the Shell Lube Plant with a Geoprobe direct push type rig or using manual sampling methods that will include spades and hand augers.

Soil sample locations will be determined based on visual evidence of surface impact and previous knowledge of subsurface impact.

- Borings transects will be placed in non-asphalt areas along the flow line of the oil at intervals of approximately 50 feet where safely accessible.
- The center borings within each transect will be placed at the lowest elevation. Step-out borings along each transect will be spaced at approximately 30 feet intervals where visual impact is present.
- Soil samples will be collected 1 foot and 5 feet beyond the visual extent of impact from the boring. If impact is evident, deeper samples will be attempted.
- Due to the safely concern associated with the ROW, some impacted soil may not be removed or sampled. Approval from EPA, Shell, and ACTA to leave impacted soil in-situ may be requested based on the location of the impacted area.

Subsurface conditions will be continuously logged and samples will be collected to confirm the vertical and lateral limits of impact. At least two soil samples will be collected for analyses: one within the contaminated portion of the soil column and one below the visually evident impacts to assess the limits of impact.

French drain system— Areas where blockages of the french drain system were reported in the video tape provided by ACTA will be given priority for inspection by Crimson as part of the free oil recovery (Figure 4 of Project Plan). Impacted ballast material and gravel will be removed as part of the oil removal and investigation. The exact number and locations of blockages along the french drain will be determined from information and video data provided by ACTA. Soil samples along the western and eastern side of the french drain system adjacent to the railroad track will be collected to confirm the vertical limits of impact surrounding the blockage area. Soil samples will be collected as described below only where safely accessible.

- Soil samples will be collected adjacent to the existing french drain and/or utility piping.
- One investigational soil boring will be advanced every 20 feet from the bottom of the french drain system where impact is reported.
- One investigational soil boring will be advanced where known utility laterals intersect the French drain system.

- Soil samples will be collected from 0.5 foot and 2.0 feet at each boring location. If impacts are evident, deeper samples will be attempted.
- Sample locations and depths may be modified and will ultimately be determined by encountered field conditions.
- Where the bottom of the french drain consists of exposed concrete or cemented ballast larger than 2 inches in diameter, no sample will be collected and a visual assessment will be conducted to ascertain the need for removal based on evidence of free oil.
- Due to the safely concern associated with the ROW, some impacted soil may not be removed or sampled. Approval from EPA and ACTA to leave impacted soil in-situ may be requested based on the location of the soil.

4.1.2 Soil Sample Analyses

Depending on the results of the crude oil sample analyses, investigation samples may be analyzed for one or more of the following:

TEPH-full carbon chain	EPA method 8015B
VOCs	EPA method 8260B
SVOCs	EPA method 8270C
CA Title 22 Metals	EPA method 6010B

VOC and SVOC analyses will be selected based on positive TEPH results. No sample will be analyzed for VOCs and SVOCs where TEPH is not detected above laboratory reporting limits. Samples exhibiting higher concentrations of TEPHs will generally be analyzed for VOCs and SVOCs by EPA method 8260B and 8270C, respectively. Soil samples exhibiting higher concentrations of TEPH will generally be analyzed for metals by EPA method 6010B. This soil analysis selection plan will be followed until COC's are confirmed to be below action levels. Approval from the Unified Command System will be requested before analyses are eliminated for the approval SAP.

4.1.3 Surface Water Investigation Samples

It is not anticipated that sampling of surface waters from the Dominguez Channel will be required. However, should it be determined by the Unified Command, that surface water sampling is necessary, surface water samples may be collected from the Dominguez Channel using a weighted clean sample jar or sample dipper. In most cases these jars will be the actual sample jar, with the exception of sample containers containing preservative. For these samples, water contained in a sample jar or sample dipper will be carefully decanted into glass VOAs to minimize turbulence or bottles for preservation and delivery to the laboratory as indicated in subsequent sections.

4.2 CONFIRMATION SAMPLING

Random confirmation sample locations will be selected using the "Locating a Hot Spot" feature in the VSP statistical algorithm. In developing the statistical sampling plan the following were assumed:

Null Hypothesis: The mean concentration is less than the action level
Alternative Hypothesis: The mean concentration exceeds the action level.
Confidence Interval: 90 percent
Hot Spot Diameter: 20 feet
Grid Pattern: Triangular

The Visual Sampling Plan (VSP) software will be used to assess the number of samples required to provide 90 percent confidence that a 20-foot diameter hot spot would not be missed by the confirmation sampling program. Using these assumptions, maps of residual areas of concern (AOC) will be imported into the VSP program to generate random sample locations.

The data collected from the confirmation sampling program will be statistically evaluated to assure that an adequate number of samples are collected and that the data demonstrate a 90 percent confidence level that the mean concentration in the AOC is below the action level. The following errors will be used in the evaluation:

False Rejection error (0.30)
False Acceptance error (0.05)

The following decision statements will guide confirmation sampling.

If statistical validity is uncertain, then collect additional random samples for analysis. Uncertainty occurs when the null hypothesis is false, but statistical analysis shows that a sufficient number of samples have not been collected.

If the null hypothesis is false, conduct additional removal activity and regenerate random numbers for sample analysis and resample.

If null hypothesis is true, then removal action is complete.

Exceptions to these decision statements may be developed and agreed to by the Unified Command.

The following describe confirmation sampling for each of the potentially affected media.

4.2.1 Soil Confirmation Samples

Soil confirmation samples will be collected from identified AOCs where removal actions are implemented and from removal action staging areas. If removal actions are conducted in the french drain system and Youngstown Lateral pipeline area, confirmation soil samples will be collected from safely accessible areas and will be collected using hand augers at randomly selected locations, otherwise the investigation sample results will be used to document residual impacts remaining in the areas.

Confirmation samples will also be collected from staging or support areas to evaluate potential impacts resulting from removal operations.
Soil sample locations will be determined based on visual inspection and evidence of surface impacts. A grid will be overlaid on each area for sampling at the grid nodes. The size of the grid will depend upon the size and geometry of the removal operations which will be determined in the field and approved by the EPA. Confirmation samples will be collected at 0.5 feet below the french drain system.

Depending on the results of the crude oil sample analyses, confirmation samples may be analyzed for one or more of the following:

TEPH-full carbon chain	EPA method 8015B
VOCs	EPA method 8260B

If possible, the list of analytical methods will be reduced based on investigation data to one surrogate analyte (i.e. TEPH) that will be used to assess the efficacy of cleanup activities. Regardless of whether a surrogate is used to guide removal actions, the two confirmation samples exhibiting the highest concentrations of TEPH in each removal operation area will be analyzed for SVOCs and VOCs. If VOC or SVOC analytes exceed removal goals, all of the confirmation samples will be analyzed for the analyte(s) of concern for statistical evaluation of mean residual concentrations:

4.2.2 Surface Water Confirmation Samples

It is not anticipated that sampling of surface waters from the Dominguez Channel will be required. However, should it be determined by the Unified Command, that surface water confirmation sampling is necessary, surface water confirmation samples will be collected from Dominguez Channel using a weighted clean sample jar or sample dipper. In most cases these jars will be the sample jar, with the exception of sample containers containing preservative. For these samples, water contained in a sample jar will be carefully decanted into glass VOAs or bottles to reduce turbulence for preservation and delivery to the laboratory as indicated in subsequent sections.

Requested surface water samples will be collected from Dominguez Channel for the following list provides project analytes and their associated methods:

TEPH full hydrocarbon chain	EPA method 8015B
VOCs	EPA method 524.2

5.0 Laboratory

Test America Analytical Laboratories, Inc. (Test America) has been selected as the primary analytical laboratory to analyze soil and water samples.

Test America is certified to perform the analyses indicated herein by the California Environmental Laboratory Accreditation Program (ELAP). The QA report, ELAP certifications and most recent audit for Test America are attached in Attachment A.

With approval from the EPA, other laboratories may be used to quantify COPCs depending on the volume of samples generated and the capacity of the laboratory to analyze the samples within hold times or required expedited turn-around time (TAT) or for quality control and confirmation purposes.

6.0 Field Methods and Procedures

The following provide guidance for field methods and procedures that include field equipment; sampling of surface water, sediment and soil; and decontamination.

6.1 FIELD EQUIPMENT

The following provides a list of field equipment and calibration procedures

List of Equipment

Soil
Hand auger (quick disconnect rods with 2 to 4 inch soil bailers)
Hand spades and shovels
Pick axe or pry bars
5-gallon buckets
Cleaning brushes
General health and safety equipment
Sample bottles (4 to 8 ounce glass)
Core samplers
Ice-chilled cooler
PID calibrated to (100 ppmv span gas)
Hand held GPS unit

Water
Sample jars or dippers
5-gallon buckets
General health and safety equipment
Sample bottleware (VOAs, amber glass bottles and plastic bottles) Ice-chilled cooler
Water monitoring equipment
Hand held GPS Unit

Calibration of Field Equipment

Field instruments will be pre-calibrated with calibration performance checks performed on a daily basis. The field PID will be field calibrated to 100 ppm span gas on a daily basis in accordance with the manufacturer's instructions.

The water monitoring equipment will be field calibrated on a daily basis, the dissolve oxygen (DO) and oxygenation reduction potential (ORP) meter will be calibrated using a standard solution prior

to performing field measurements. The auto calibration mode of the DO meter calibrates the sensors to factory standards, the Zero value is adjusted at the factory before shipping.

6.2 SAMPLING

During sample collection care will be taken to avoid contact with sampling gloves with the sample media and the interior of the sample container. The following summarizes sampling the methodology for the media, expected to be sampled for during this project.

6.2.1 Soil Sampling

Soil samples collected for vertical characterization of the extent of impact in soil will be sampled using a hand auger or equivalent methods to evaluate the vertical extent of crude oil impact. The hand auger will be manually advanced with downward pressure until the auger is full. At that point, the auger will be removed and the soil will be evaluated for evidence of oil impact. Soil samples will be selected for chemical analysis based on visual evidence of oil discoloration and availability of sufficient quantity to define the extent of impact in the subsurface.

Continuous samples may be collected using a Geoprobe rig or other methods using samplers lined with 1.5- to 2-inch inside diameter clear acetate liners. The sample liner will be split longitudinally for characterization and logging. The entire length of the split core will be scanned with a PID. Samples will be collected for VOC and non-VOC analysis within portions of the core where impacts are evident and from “clean” portions above and below the impact zone to define the extent of impact. VOC samples will be collected using Core Samplers pushed directly into the core and sections of the core will be transferred to 4 to 8 ounce glass jars following the procedures outlined in this SAP.

Based on field observation of subsurface characteristics, samples will be collected at select intervals for measurement of headspace volatile organic vapors using a PID calibrated to 100 ppmv span gas. The following protocols will be followed in taking headspace measurements:

1. Seal sample in a labeled one quart resealable plastic bag (i.e. Ziploc).
2. Manually break up and homogenize the sample
3. Carefully open the corner of the bag and insert tip of the PID into the bag while taking care to seal the bag round the tip with finger tips.
4. Once the reading stabilizes (approximately 5 seconds), record the PID reading as ppmv.

All borings or sample points will be continuously sampled and logged.

Samples for analysis of nonvolatile components will be discharged directly from the bailer into 4 to 8 ounce jars and hand packed to remove dead air headspace and sealed with a Teflon-lined screw cap lid.

Samples for VOC analysis will be collected in accordance with EPA method 5035 (using Core samplers). Each Coring Sampler will be collected from the sidewall of the boring/excavation, from the end of a core or tube sample, from the bottom of the hand auger bailer or from the bottom of the spade where the freshest sample is generally located. The Core Samplers will be collected in such a manner as to avoid contact with the hand auger or spade. A minimum of 3 Core Samplers will be collected from each sample point. The Core Samplers will be sealed with the provided caps, labeled, placed in labeled Ziploc bags and stored in an ice-chilled cooler for transport to the laboratory.

6.2.2 Water Samples

If surface water samples are required, samples will be collected from the upper 0.5 feet of the channel using a weighted sample jar or dip. The jar or dip will be completely submerged to allow sampling below the air water interface. Where insufficient surface water exists in the wash, shallow wells will be excavated prior to sampling and the water will be allowed to clear before sampling. Where sufficient water exists, samples will be collected directly into the sample bottle, unless the bottle or VOA contains preservative. All bottles will be pre-preserved by the laboratory or supplier. For samples in preserved bottles or VOAs, the sample will be carefully decanted from a sampling jar or dipper directly into the sample bottle/VOA by carefully pouring the sample down the side of the sample jar (held at an angle) to reduce turbulence to prevent volatilization of any potential volatile fractions.

At each sampling location, all bottles designated for a specific analysis (e.g., VOCs) will be filled sequentially before bottles designated for the next analysis are filled (e.g., SVOCs). If a duplicate sample is to be collected at this location, all bottles designated for analysis for both sample designations will be filled sequentially before bottles for another analysis are filled. Where multiple bottles are required for a given set of analyses, duplicate samples will be collected from alternating filled bottles. For example, if 3 bottles are required for a given set of analyses and duplicate analyses are also scheduled (total of 6 bottles to be filled), bottles 1, 3 and 5 would be used as the original sample set and bottles 2, 4 and 6 would be used for duplicate analysis.

Water samples will be transferred from the discharge tube or outlet directly into the appropriate sample containers with preservative (if required), chilled, and processed for shipment to the laboratory. When transferring samples, care will be taken not to touch the lip or interior of the sample container to avoid artifact contamination.

Vials for VOC analysis (VOAs) will be filled first to minimize the effect of aeration on the water sample. The vials will be filled to prevent air bubbles and capped. The vial will be inverted and

checked for air bubbles to ensure zero headspace. If a bubble greater than 6 mm in diameter appears in the VOA, the VOA will be discarded and a new sample will be collected in a fresh VOA.

Samples collected in amber glass bottles (two 500 ml bottles) for analysis of TEPH will also be preserved with HCl. All sample containers will supplied by the laboratory with the required perseverates. All samples will be stored in an ice-filled cooler for transport to the laboratory.

6.3 DECONTAMINATION

The decontamination procedures that will be followed are in accordance with approved EPA procedures. Decontamination of sampling equipment must be conducted consistently as to assure the quality of samples collected. All equipment that comes into contact with the sample media will be decontaminated. Disposable equipment intended for one-time use will be packaged for appropriate disposal. Decontamination will occur prior to and after each use of a piece of equipment. All sampling devices used will be decontaminated according to the following procedure:

Tap water and nonphosphate detergent wash using a brush or scrubber
Tap water rinse
Deionized/distilled water rinse

All cleaned materials shall be stored in manner to prevent contact with potentially contaminated media using plastic bags or by being placed upright in clean buckets or other containers. Materials to be stored more than a few hours will also be covered.

Decontamination fluids will be discharged to skim ponds or other approved areas where removal activities are ongoing.

7.0 Sample Containers, Preservation, and Storage

Proper sample container will be obtained from the laboratory prior to field operations. Sample containers used will be pre-cleaned and will not be rinsed prior to sample collection. Preservatives, if required, will be added by the laboratory or supplier prior to shipment to the field. The following subsections provide a discussion concerning containers, preservation, and storage for each type of analysis. Table D-2 summarizes requirements for containers, preservation and hold times.

7.1 VOLATILE ORGANIC COMPOUNDS AND TEPH

Soil

Samples for VOCs will be collected in accordance with EPA method 5035. The sample will be contained in Core Sampler containers. A total of three Core Sampler containers will be collected at each sample point prior to agitation. Each Core Sampler will be sealed with the provided cap until it snaps into place. Each sample will be sealed in the resealable pouch, labeled and place in an ice-filled cooler at <4°C.

For TEPH, soil samples will be contained in hand packed 4 to 8-ounce glass jars or 6-inch brass or stainless steel sample tubes. The top of the container will be struck off level to preclude headspace. Glass jars will be sealed with a Teflon-lined screw cap lid, while tube samples will be capped on each end with a Teflon sheet followed by tight-fitting plastic caps sealed with non-VOC tape. The sample will be preserved in an ice-chilled cooler at <4°C.

Water

Water samples for TEPH will be collected in 500 milliliter (mL) amber glass bottles pre-preserved by the laboratory with HCl (pH<2). Two bottles will be collected at each sample location. The bottles will be filled to allow the water to mound over the top of the bottle and then sealed with the screw cap lid to preclude any air bubbles or headspace. Once the bottles are sealed and labeled, the bottles will be stored in an ice-filled cooler for transport to the laboratory at <4°C.

Water samples to be analyzed for volatile organic compounds will be collected in three 40 mL glass VOAs preserved by the laboratory with 1:1 HCl (pH<2). The vials will be filled to allow the water to mound over the top of the VOA and capped to remove any headspace. The samples

will be chilled to 4°C immediately following collection in an ice-chilled cooler. Three VOAs will be required for analysis of VOCs from each water sample location.

7.2 SEMI VOLATILE ORGANIC COMPOUNDS

Soil

Soil samples will be contained in hand packed 4 to 8-ounce glass jars or 6-inch brass or stainless steel sample tubes. The top of the container will be struck off level to preclude headspace. Glass jars will be sealed with a Teflon-lined screw cap lid, while tube samples will be capped on each end with a Teflon sheet followed by tight-fitting plastic caps sealed with non-VOC tape. The sample will be preserved in an ice-filled cooler at <4°C. The container used for TEPH analysis may also be used for SVOC analysis.

Water

Water samples for SVOC analysis will be contained in 1-liter amber bottles Supplied by the laboratory. Two bottles will be collected at each sample location. The bottles will be filled to allow the water to mound over the top of the bottle and then sealed with the screw cap lid to preclude any air bubbles or headspace. Once the bottles are sealed and labeled, the bottles will be stored in an ice-chilled cooler for transport to the laboratory at <4°C.

8.0 Disposal of Residual Materials

In the process of collecting environmental samples, several different types of potentially contaminated waste will be generated including:

Used personal protective equipment (PPE)
Disposable sampling equipment
Decontamination fluids

The following subsections describe management of used PPE and decontamination fluids.

8.1 USED PPE AND DISPOSABLE EQUIPMENT

Used PPE and disposable equipment will be double bagged and discarded as described in Section 4.0.

8.2 DECONTAMINATION FLUIDS

Decontamination fluids that will be generated in the sampling event will consist of deionized and tapwater rinsate with dilute residual contaminants. The volume and concentration of the decontamination fluid will be sufficiently low to allow disposal at the site or sampling area. The water will be managed as discussed in Section 4.0.

9.0 Sample Documentation and Shipment

The following subsections provide details concerning sample documentation and shipping procedures including field notes, labeling, chain-of-custody, custody seals, and packaging and shipment.

9.1 FIELD NOTES

Because sampling situations vary widely, field notes will be as descriptive and inclusive as possible; anyone reading the entries should be able to reconstruct the sampling situation from the recorded information. Language within field notes will be objective, factual, and free of inappropriate or ambiguous terminology. All field personnel are to date and sign any data entries. All field documentation will be retained.

Sampling field data sheets include information on specific activities related to collection of a single sample. The sampling field data sheets will be completed in the field at the time of the sample collection by the sampling personnel. A Sampling Field Data Sheet is provided in Attachment B.

The field data recorded at the time of sample collection provides unambiguous identification of each sample. At a minimum, the following information will be recorded during the collection of each sample:

- Sample location (GPS unit coordinates, depth (in feet) and description)
- Site or sampling area sketch showing sample location and measured distances or GPS coordinates.
- Sampler's name
- Date and time of sample collection
- Designation of sample as composite or grab
- Type of sample
- Type of sampling equipment used
- Field instrument readings and calibration
- Field observations and details related to analysis or integrity of sample
- Preliminary sample descriptions
- Sample preservation
- Lot numbers of the sample containers, sample identification numbers and any explanatory codes, and chain-of-custody form numbers

In addition to the sampling information, the following specific information will also be recorded in the field notes:

- Time of arrival/entry on site and time of site departure
- Other personnel on site
- Summary of any meetings or discussions with tribal, contractor, or federal agency personnel
- Procedural deviations and/or personnel changes
- Calibration records

9.2 LABELING

All samples collected will be labeled in a clear and precise way for proper identification in the field and for tracking in the laboratory. The samples will have preassigned, identifiable, and unique sample I.D. numbers. At a minimum, the sample labels will contain the following information in indelible ink: sample I.D., sample location, date of collection, analytical parameter(s), and method of preservation.

Each sample will be given a unique sample I.D. number for reference on maps, chain of custody documentation and field logs. The I.D. will designate whether the general location of the sample, the media sampled and a unique number identifying the sample location and depth. The nomenclature for each sample will be identified as follows:

ZV-XXY-ABB-CC

Where:

Z = Activity Phase
'N' for Investigation phase
'C' for confirmation phase

V = Duplicate sample
If sample is a field duplicate the letter 'R' or 'V' will be inserted. Otherwise this space is left blank.

X = General Location
'YL' for Youngstown Lateral
'FD' for French Drain
'SD' for Storm Drain Collection
'SL' for Shell Lube Plant
'DC' for Dominguez Channel

Y = Media
'W' for water

'S' for soil

A = Sample Point Type
'T' for transect
'H' for hand auger
'G' for grab sample
'B' for boring sample

BB = Unique transect, or boring number (i.e. 01, 02….10, 11, etc.)

CC = Sample depth (i.e. 0.5, 2.5, 5.0 feet, etc.)

Trip blanks and equipment blanks will be labeled with the nomenclature of Z-XX-Y-AABBCC. Where:

Z = Activity Phase
N for investigation
C for confirmation

Y = Media
W for water or aqueous sample

AABBCC = Sample Date
AA = month, BB = day, and CC = year of sample collection

9.3 CHAIN-OF-CUSTODY

Chain-of-custody record forms are used to document sample collection and shipment to laboratories for analysis. All sample shipments for analyses will be accompanied by a chain-of-custody record. A copy of the form is found in Attachment C. Form(s) will be completed and sent with the samples for each shipment. Proper distribution of the forms is found in the *Instructions for Sample Shipping and Documentation* guidance document. If multiple coolers are sent to a single laboratory on a single day, form(s) will be completed and sent with the samples for each cooler.

The chain-of-custody form will identify the contents of each shipment and maintain the custodial integrity of the samples. Generally, a sample is considered to be in someone's custody if it is either in someone's physical possession, in someone's view, locked up, or kept in a secured area that is restricted to authorized personnel. Until the samples are shipped, the custody of the samples will be the responsibility of the sampler. The sampling team leader or designee will sign the chain-of-custody form in the "relinquished by" box and note date, time, and air bill number. The sample numbers for all rinsate samples, reference samples, laboratory QC

samples, and duplicates will be documented on this form (see Section 10.0). A copy will be retained in the master files.

9.4 PACKAGING AND SHIPMENT

All sample containers will be placed in a strong-outside shipping container (a steel-belted cooler). The following outlines the packaging procedures that will be followed for low concentration samples:

1. When ice is used, pack it in zipper-locked, double plastic bags. Seal the drain plug of the cooler with fiberglass tape to prevent melting ice from leaking out of the cooler.
2. The bottom of the cooler should be lined with bubble wrap to prevent breakage during shipment.
3. Check screw caps for tightness and, if not full, mark the sample volume level of liquid samples on the outside of the sample bottles with indelible ink.
4. Secure bottle/container tops with clear tape and custody seal all container tops.
5. Affix sample labels onto the containers with clear tape.
6. Wrap all glass sample containers in bubble wrap to prevent breakage.
7. Seal all sample containers in heavy duty plastic zipper-lock bags. Write the sample numbers on the outside of the plastic bags with indelible ink.
8. Place samples in a sturdy cooler(s) lined with a large plastic trash bag. Enclose the appropriate chain-of-custody forms in a zipper-lock plastic bag affixed to the underside of the cooler lid.
9. Fill empty space in the cooler with bubble wrap or Styrofoam peanuts to prevent movement and breakage during shipment.
10. Ice used to cool samples will be double sealed in two zipper-lock plastic bags and placed on top and around the samples to chill them to the correct temperature.
11. Each ice chest will be securely taped shut with fiberglass strapping tape and custody seals will be affixed to the front, right and back of each cooler. Records will be maintained by the project sample custodian with the following information:
    - Name and location of the site or sampling area
    - Total number(s) by estimated concentration and matrix of samples shipped
    - Carrier, air bill number(s), method of shipment
    - Shipment date and when it should be received by lab
    - Irregularities or anticipated problems associated with the samples
    - Whether additional samples will be shipped or if this is the last shipment.

10.0 Quality Control

The following subsections discuss collection and analysis of quality control samples including field quality control and laboratory quality control samples.

10.1 FIELD QUALITY CONTROL SAMPLES

Field quality control samples are intended to help evaluate conditions resulting from field activities and are intended to accomplish two primary goals: (1) assessment of field contamination (equipment blanks) and (2) assessment of sampling variability (duplicate samples). The former identifies substances introduced in the field due to environmental or sampling equipment and are assessed using blanks of different types. The latter includes variability due to sampling technique and instrument performance as well as variability possibly caused by the heterogeneity of the matrix being sampled and is assessed using replicate sample collection. The following sections cover field QC.

10.1.1 Equipment Blanks

Equipment blanks will be collected in lieu of field blanks as they provide the best overall means of assessing contamination arising from the equipment, ambient conditions, sample containers, transit, and the laboratory. One equipment rinsate blank will be collected per day that sampling equipment is decontaminated in the field. Equipment rinsate blanks will be obtained by passing deionized water through or over the decontaminated sampling devices used that day. The rinsate blanks that are collected will be analyzed for VOCs, SVOCs, TEPH. The equipment rinsate blanks will be preserved, packaged, and sealed in the manner described for the environmental samples.

10.1.2 Temperature Blanks

For each cooler that is shipped or transported to an analytical laboratory, a 40-mL VOA vial or pre-manufactured temperature blank will be included that is marked “temperature blank.” This blank will be used by the laboratory sample receiver to check the temperature of samples upon receipt.

10.1.3 Travel Blanks

One travel or trip blank will be submitted for VOC analysis with each cooler containing sample requiring VOC analyses. Trip blanks are supplied by the laboratory with the sampling containers at the start of field activities and accompany the sample containers throughout the project.

10.1.4 Assessment of Field Variability (Field Duplicate Samples)

Field duplicate samples will be collected from water, soil and sediment samples at a rate of 5 percent or one in 20 samples. VOC duplicates will be collected prior to agitation. Once the VOC samples are collected, the soil and sediment samples designated for field duplication will be thoroughly homogenized in a sealed plastic bag (VOCs) or in another clean container. The sample will then be split for duplicate sampling.

When collecting duplicate water samples, bottles with the two different sample identification numbers will alternate in the filling sequence. Note that bottles for one type of analysis will be filled before bottles for the next analysis are filled. Samples for volatiles will always be filled first.

Duplicate samples will be preserved, packaged, and sealed in the same manner as other samples of the same matrix. A separate sample number and station number will be assigned to each duplicate, and it will be submitted blind to the laboratory. Field duplicates will be identified in the field log book.

10.2 LABORATORY QUALITY CONTROL SAMPLES

Laboratory QC samples are analyzed as part of standard laboratory practice. The laboratory monitors the precision and accuracy of the results of its analytical procedures through analysis of QC samples. In part, laboratory QC samples consist of matrix spike/matrix spike duplicate samples for organic analyses, and matrix spike and duplicate samples for inorganic analyses.

11.0 Field Variances

As conditions in the field may vary, it may become necessary to implement minor modifications to sampling as presented in this plan. Also, as conditions are revealed and AOCs are better defined, modifications are expected with respect to confirmation sampling locations, etc. The EPA OSC will be notified and a verbal approval will be obtained before implementing the changes. Modifications to the approved plan will be documented in the sampling project report.

12.0 Field Health and Safety Procedures

A site specific health and safety plan (HASP) has been developed for this project under separate cover.

ATTACHMENT A

Appendix 3. Laboratory Certifications, Accreditations, Validations

The Irvine and Ontario laboratories maintain certifications, accreditations, certifications, and validations with various state and national entities. Programs vary but may include on-site audits, reciprocal agreements with another entity, performance testing evaluations, review of the QA Manual, Standard Operating Procedures, Method Detection Limits, training records, etc. At the time of this QA Manual revision, the laboratory has accreditation/certification/licensing with the following organizations:

IRVINE FIXED LABORATORY (CA01531)			
State	**Agency**	**Program**	**License Number**
CA	CDPH-NELAP	DW, WW, HW	01108CA
CA	CDPH-ELAP	HW	2706
AZ	DHS	DW, WW, HW	AZ0671
NV	DEP	DW, WW, RCRA	CA015312009A
HI	DOH	DW	--
CNMI	DEQ	DW	MP002
GUAM	EPA	DW	10-001r
NM	DWB	DW	--
--	CSDLAC	WW	10256
--	USDA	Foreign Soil	P330-09-00080
--	EPA	ERLN/Water Laboratory Alliance (WLA)	--

IRVINE MOBILE LABORATORY #3 (CA01473)			
State	**Agency**	**Program**	**License Number**
CA	CDPH-ELAP	WW, HW	2678

ONTARIO SERVICE CENTER (CA01533)			
State	**Agency**	**Program**	**License Number**
CA	CDPH-ELAP	DW, WW [micro only]	2696

The certificates and parameter lists (which may differ) for each organization may be found on the corporate web site, the laboratory's public server, the final report review table, and in the following offices: QA, marketing, and project management.

Appendix 4 Laboratory Capabilities

Program	Analyte Group	Technique	Method	Source	Description
Drinking Water	Bacteriological	Microbiology	9215B	Std. Methods	Heterotrophic bacteria (Pour Plate Method)
Drinking Water	Bacteriological	Microbiology	9221 B	Std. Methods	E. Coli
Drinking Water	Bacteriological	Microbiology	9221 B	Std. Methods	Coliforms, Total by MTF (MPN)
Drinking Water	Bacteriological	Microbiology	9221 D	Std. Methods	Coliforms Fecal (Presence/Absence)
Drinking Water	Bacteriological	Microbiology	9221 E	Std. Methods	Fecal Coliforms by MTF
Drinking Water	Bacteriological	Microbiology	9221A	Std. Methods	Coliforms, Total - Fermentation Technique
Drinking Water	Bacteriological	Microbiology	9221A	Std. Methods	Coliforms, Total - Enumeration
Drinking Water	Bacteriological	Microbiology	9223B	Std. Methods	Total Coliforms
Drinking Water	Bacteriological	Microbiology	9223B	Std. Methods	E. Coli
Drinking Water	Bacteriological	Microbiology	SIMPLATE	IDEXX	Heterotrophic Bacteria
Drinking Water	Diquat/paraquat	HPLC	549.2	EPA	Diquat/paraquat
Drinking Water	EDB/DBCP	GC/ECD	504.1	EPA	DBCP & EDB
Drinking Water	General Chemistry	Turbidimetric	180.1	EPA	Turbidity
Drinking Water	General Chemistry	Ion Chromatography (IC)	300.0	EPA	Anions, by IC (Br, PO4, SO4, NO3, NO2,Cl, F)
Drinking Water	General Chemistry	Ion Chromatography (IC)	300.1	EPA	Bromate,Chlorite,Chlorate,Bromide
Drinking Water	General Chemistry	Titrimetric	310.1	EPA	Alkalinity, (Total, bicarb, carb, hydrox)
Drinking Water	General Chemistry	Spectrophotometric	330.5	EPA	Chlorine Residual
Drinking Water	General Chemistry	General Chemistry	2120 B	Std. Methods	Color
Drinking Water	General Chemistry	Turbidimetric	2130 B	Std. Methods	Turbidity
Drinking Water	General Chemistry	General Chemistry	2150 B	Std. Methods	Odor
Drinking Water	General Chemistry	Titrimetric	2320 B	Std. Methods	Alkalinity, Hydroxide
Drinking Water	General Chemistry	Titrimetric	2320 B	Std. Methods	Alkalinity, Total
Drinking Water	General Chemistry	Titrimetric	2320 B	Std. Methods	Alkalinity, Carbonate
Drinking Water	General Chemistry	Titrimetric	2320 B	Std. Methods	Alkalinity, Bicarbonate
Drinking Water	General Chemistry	Calculation	2330A+B	Std. Methods	Corrosivity (Langlier Index)
Drinking Water	General Chemistry	Calculation	2340 B	Std. Methods	Hardness (by calculation)
Drinking Water	General Chemistry	Potentiometric	2510 B	Std. Methods	Conductance, Specific
Drinking Water	General Chemistry	General Chemistry	2550 B	Std. Methods	Temperature
Drinking Water	General Chemistry	Spectrophotometric	4500-CN C E	Std. Methods	Cyanide, Total (includes distillation method)
Drinking Water	General	Spectrophotometric	4500-CN E	Std.	Cyanide, Total (Colorimetric-Spec)

Program	Analyte Group	Technique	Method	Source	Description
	Chemistry			Methods	
Drinking Water	General Chemistry	Automated, Colorimetric	4500-CN G	Std. Methods	Cyanide, Total (Automaed Color. or Spec)
Drinking Water	General Chemistry	Spectrophotometric	4500-CN G	Std. Methods	Cyanide, Amenable to Chlorination
Drinking Water	General Chemistry	Potentiometric	4500-F C	Std. Methods	Fluoride (probe)
Drinking Water	General Chemistry	Potentiometric	4500-F C	Std. Methods	Fluoride
Drinking Water	General Chemistry	Potentiometric	4500-H+B	Std. Methods	pH
Drinking Water	Glyphosate	HPLC	547	EPA	Glyphosate
Drinking Water	Haloacetic Acids (HAAs)	GC/ECD	552.2	EPA	Haloacetic Acids (HAAs)
Drinking Water	Herbicides	GC/ECD	515.4	EPA	Chlorinated Acids
Drinking Water	Metals	Calculation	200.7	EPA	Hardness (calculation from ICP results)
Drinking Water	Metals	Digestion	200.7	EPA	Digestion, Metals - Total Recoverable for ICP
Drinking Water	Metals	ICP	200.7	EPA	Silica
Drinking Water	Metals	Digestion	200.9	EPA	Digestion, Metals - Total Recoverable for Graphite Furance
Drinking Water	Metals	GFAA	200.9	EPA	Metals, Graphite Furnace
Drinking Water	Metals	CVAA	245.1	EPA	Mercury, CVAA
Drinking Water	Perchlorate	IC/MS	332.0	EPA	Perchlorate
Drinking Water	Pesticides	GC/ECD	508.1	EPA	Pesticides
Drinking Water	Pesticides	HPLC	531.1	EPA	Carbamates
Drinking Water	Pesticides	GC/MS	548.1	EPA	Endothall
Drinking Water	Pesticides / PCBs	GC/ECD	505	EPA	Pesticides / PCBs
Drinking Water	Semivolatile Organics	GC/MS	525.2	EPA	Semivolatiles
Drinking Water	Volatile Organics	GC/Microextraction	504.1	EPA	EDB/DBCP/TCP
Drinking Water	Volatile Organics	GC/MS	524.2	EPA	Volatiles, Drinking Water
Drinking Water	Volatile Organics	GC/MS	524.2	EPA	Tentatively Identified Compounds (TICs)
Drinking Water	Volatile Organics	GC/MS	CA SRL 524M-TCP	California DHS	1,2,3-Trichloropropane
Solid & Hazardous Waste	BTEX	GC/FID	8021B	SW-846	BTEX
Solid & Hazardous Waste	Extractable Organics	Extraction	3510C	SW-846	Extraction, Separatory Funnel Liquid-Liquid
Solid & Hazardous Waste	Extractable Organics	Extraction	3520C	SW-846	Extraction, Continuous Liquid-Liquid
Solid & Hazardous Waste	Extractable Organics	Extraction	3550B	SW-846	Extraction, Ultrasonic
Solid & Hazardous Waste	Extractable Organics	Extraction	3580A	SW-846	Extraction, Waste Dilution
Solid & Hazardous Waste	Extractable Organics	Clean-Up	3620B	SW-846	Florisil Cleanup
Solid & Hazardous Waste	Extractable Organics	Clean-Up	3650B	SW-846	Acid-Base Partition Cleanup
Solid & Hazardous Waste	Extractable Organics	Clean-Up	3660B	SW-846	Sulfur Cleanup
Solid & Hazardous Waste	Extractable Organics	Clean-Up	3665A	SW-846	Sulfuric Acid/Permanganate Cleanup

Program	Analyte Group	Technique	Method	Source	Description
Solid & Hazardous Waste	General Chemistry	Spectrophotometric	9014	SW-846	Cyanide, Total
Solid & Hazardous Waste	General Chemistry	Spectrophotometric	9014	SW-846	Cyanide, Amenable to Chlorination
Solid & Hazardous Waste	General Chemistry	Titrimetric	9034	SW-846	Sulfide, Acid Soluble & Insoluble Forms
Solid & Hazardous Waste	General Chemistry	Ion Chromatography (IC)	9056	SW-846	Anions, by IC (Br, PO4, SO4, NO3, NO2,Cl, F)
Solid & Hazardous Waste	General Chemistry	IR	9060	SW-846	Total Organic Carbon (TOC)
Solid & Hazardous Waste	General Chemistry	Spectrophotometric	9065	SW-846	Phenols, Total
Solid & Hazardous Waste	General Chemistry	Potentiometric	9214	SW-846	Fluoride (distillation probe)
Solid & Hazardous Waste	General Chemistry	Pensky Martens Closed Cup	1010 A	SW-846	Ignitability
Solid & Hazardous Waste	General Chemistry	Digestion	3060 A	SW-846	Digestion, Alkaline for Hexavalent Chromium
Solid & Hazardous Waste	General Chemistry	Spectrophotometric	9010 B	SW-846	Cyanide, Total (prep only)
Solid & Hazardous Waste	General Chemistry	Spectrophotometric	9012 B	SW-846	Cyanide, Total
Solid & Hazardous Waste	General Chemistry	Distillation	9030B	SW-846	Sulfide (Distillation)
Solid & Hazardous Waste	General Chemistry	Potentiometric	9040B	SW-846	Corrosivity, as pH
Solid & Hazardous Waste	General Chemistry	Potentiometric	9045C	SW-846	pH, Solid & Waste
Solid & Hazardous Waste	General Chemistry	Potentiometric	9050A	SW-846	Specific Conductance
Solid & Hazardous Waste	General Chemistry	General Chemistry	9095A	SW-846	Paint Filter Test
Solid & Hazardous Waste	General Chemistry	Ion Chromatography (IC)	314.0	EPA	Perchlorate
Solid & Hazardous Waste	Hydrocarbons	Gravimetric	1664 A	EPA	Oil & Grease & Petroleum Hydrocarbons
Solid & Hazardous Waste	Hydrocarbons	GC/FID	8015AZ R.1	Arizona DHS	C10 - C32 Hydrocarbons
Solid & Hazardous Waste	Hydrocarbons	GC/FID	8015B_DRO	SW-846	Diesel Range Organics (DRO)
Solid & Hazardous Waste	Hydrocarbons	GC/FID	8015B_GRO	SW-846	Gasoline Range Organics (GRO)
Solid & Hazardous Waste	Hydrocarbons	GC/FID	8015D_DRO	SW-846	Diesel Range Organics (DRO)
Solid & Hazardous Waste	Hydrocarbons	GC/FID	8015D_GRO	SW-846	Gasoline Range Organics (GRO)
Solid & Hazardous Waste	Hydrocarbons	Gravimetric	9071B	SW-846	Oil & Grease (Gravimetric)
Solid & Hazardous Waste	Hydrocarbons	GC/FID	CA LUFT	CA LUFT	Diesel Range Organics (DRO) CA LUFT
Solid & Hazardous Waste	Leach	TCLP	1311	SW-846	TCLP, Toxicity Characteristic Leachate Procedure
Solid & Hazardous Waste	Leach	SPLP	1312	SW-846	Synthetic Precipitate Leachate Procedure
Solid & Hazardous Waste	Metals	ICP/MS	6020	SW-846	Metals, ICP-MS Analysis
Solid & Hazardous Waste	Metals	Ion Chromatography (IC)	7199	SW-846	Chromium, Hexavalent
Solid & Hazardous Waste	Metals	ICP	9081	SW-846	Cation Exchange Capacity (Sodium Acetate)

Program	Analyte Group	Technique	Method	Source	Description
Solid & Hazardous Waste	Metals	Digestion	3005 A	SW-846	Digestion, Metals - Waters/Dissolved/Total Rec. for FLAA & ICP
Solid & Hazardous Waste	Metals	Digestion	3010 A	SW-846	Digestion, Metals - Aqueous Samples & Extracts
Solid & Hazardous Waste	Metals	Digestion	3020 A	SW-846	Digestion, Metals for Graphite Furance
Solid & Hazardous Waste	Metals	Digestion	3050 B	SW-846	Digestion, Metals - Sediments, Sludges & Soils
Solid & Hazardous Waste	Metals	General Chemistry	6010B	SW-846	Silica
Solid & Hazardous Waste	Metals	ICP	6010B	SW-846	Metals
Solid & Hazardous Waste	Metals	Spectrophotometric	7196A	SW-846	Chromium, Hexavalent
Solid & Hazardous Waste	Metals	CVAA	7470A	SW-846	Mercury in Liquid Waste
Solid & Hazardous Waste	Metals	CVAA	7471A	SW-846	Mercury in Solid or Semisolid Waste
Solid & Hazardous Waste	Metals	GFAA	HML-939-M	CA DTSC	Organo Lead
Solid & Hazardous Waste	PCBs	GC/ECD	8082	SW-846	PCBs
Solid & Hazardous Waste	Pesticides	GC/ECD	8081A	SW-846	Organochlorine Pesticides
Solid & Hazardous Waste	Semivolatile Organics	Extraction	3545	SW-846	Extraction, Pressurized Fluid
Solid & Hazardous Waste	Semivolatile Organics	GC/MS	8270C	SW-846	Semivolatiles
Solid & Hazardous Waste	Semivolatile Organics	GC/MS	8270C	SW-846	PAHs GC/MS Scan Low Level
Solid & Hazardous Waste	Semivolatile Organics	GC/MS	8270C SIM	SW-846	PAHs GC/MS SIM Low Level
Solid & Hazardous Waste	Volatile Organics	Purge and Trap	5035	SW-846	Closed System Purge and Trap for Soils and Waste
Solid & Hazardous Waste	Volatile Organics	Purge and Trap	5030B	SW-846	Purge and Trap for Aqueous Samples
Solid & Hazardous Waste	Volatile Organics	GC/FID	8015B_DAI	SW-846	Alcohols
Solid & Hazardous Waste	Volatile Organics	GC/FID	8021B	SW-846	BTEX and GRO (Plus MTBE)
Solid & Hazardous Waste	Volatile Organics	GC/MS	8260B	SW-846	Volatiles
Solid & Hazardous Waste	Volatile Organics	GC/MS	8260B SIM	SW-846	Volatiles, SIM Low-Level GC/MS
Solid & Hazardous Waste	Waste Characterization	Waste Characterization	1010	SW-846	Flashpoint, Pensky-Martens
Solid & Hazardous Waste	Waste Characterization	Waste Characterization	1010	SW-846	Ignitability, Pensky-Martens
Solid & Hazardous Waste	Waste Characterization	Waste Characterization	SW 7.1.2	SW-846	Ignitability, Solids/Wastes
Wastewater	Bacteriological	Microbiology	9215B	Std. Methods	Heterotrophic Bacteria (Pour Plate Method)
Wastewater	Bacteriological	Microbiology	9221 B	Std. Methods	Coliforms, Total by MTF (MPN)
Wastewater	Bacteriological	Microbiology	9221 E	Std. Methods	Fecal Coliforms by MTF
Wastewater	Bacteriological	Microbiology	9221 F	Std. Methods	E. Coli
Wastewater	Bacteriological	Microbiology	9221C	Std.	Coliforms, Fecal

Program	Analyte Group	Technique	Method	Source	Description
				Methods	
Wastewater	Bacteriological	Microbiology	9223B	Std. Methods	E. Coli
Wastewater	Bacteriological	Microbiology	9230B	Std. Methods	Enterococci
Wastewater	Bacteriological	Microbiology	9230B	Std. Methods	Enterococci
Wastewater	Bacteriological	Microbiology	9230B	Std. Methods	Fecal Streptococci
Wastewater	Bacteriological	Microbiology	9230B	Std. Methods	Fecal Streptococci
Wastewater	BTEX	GC/FID	8021B	SW-846	BTEX
Wastewater	General Chemistry	Spectrophotometric	110.1	EPA	Color
Wastewater	General Chemistry	Potentiometric	120.1	EPA	Conductance, Specific
Wastewater	General Chemistry	Titrimetric	130.2	EPA	Hardness (EDTA Total as CaCO3)
Wastewater	General Chemistry	General Chemistry	140.1	EPA	Odor
Wastewater	General Chemistry	Potentiometric	150.1	EPA	pH
Wastewater	General Chemistry	Gravimetric	160.1	EPA	Solids, Total Dissolved (180 C)
Wastewater	General Chemistry	Gravimetric	160.2	EPA	Solids, Total Suspended (103 - 105 C)
Wastewater	General Chemistry	Gravimetric	160.3	EPA	Solids, Total (103 - 105 C)
Wastewater	General Chemistry	Gravimetric	160.3	EPA	Moisture, Percent (%)
Wastewater	General Chemistry	Gravimetric	160.4	EPA	Solids, Total Volatile
Wastewater	General Chemistry	Gravimetric	160.4	EPA	Solids, Volatile Suspended
Wastewater	General Chemistry	Gravimetric	160.5	EPA	Solids, Settleable
Wastewater	General Chemistry	Gravimetric	160.5	EPA	Solids, Settleable
Wastewater	General Chemistry	General Chemistry	170.1	EPA	Temperature
Wastewater	General Chemistry	Turbidimetric	180.1	EPA	Turbidity
Wastewater	General Chemistry	Ion Chromatography (IC)	300.0	EPA	Anions, by IC (Br, PO4, SO4, NO3, NO2,Cl, F)
Wastewater	General Chemistry	Ion Chromatography (IC)	300.1	EPA	Bromate,Chlorite,Chlorate,Bromide
Wastewater	General Chemistry	Titrimetric	305.1	EPA	Acidity
Wastewater	General Chemistry	Titrimetric	310.1	EPA	Alkalinity, (Total, bicarb, carb, hydrox)
Wastewater	General Chemistry	Ion Chromatography (IC)	314.0	EPA	Perchlorate
Wastewater	General Chemistry	Spectrophotometric	335.1	EPA	Cyanide, Amenable to Chlorination
Wastewater	General Chemistry	Spectrophotometric	335.2	EPA	Cyanide, Free
Wastewater	General Chemistry	Potentiometric	340.2	EPA	Fluoride
Wastewater	General Chemistry	Potentiometric	350.3	EPA	Ammonia

Program	Analyte Group	Technique	Method	Source	Description
Wastewater	General Chemistry	Spectrophotometric	351.2	EPA	Nitrogen, Total Kjeldahl (TKN)
Wastewater	General Chemistry	Potentiometric	351.4	EPA	Total Kjeldahl Nitrogen (TKN)
Wastewater	General Chemistry	Potentiometric	360.1	EPA	Oxygen, Dissolved
Wastewater	General Chemistry	Spectrophotometric	365.3	EPA	Phosphate (Ortho)
Wastewater	General Chemistry	Spectrophotometric	376.2	EPA	Sulfide (Methylene Blue)
Wastewater	General Chemistry	Potentiometric	405.1	EPA	BOD5
Wastewater	General Chemistry	Spectrophotometric	410.4	EPA	COD, Automated
Wastewater	General Chemistry	Oxidative Combustion	415.1	EPA	Dissolved Organic Carbon
Wastewater	General Chemistry	Spectrophotometric	420.1	EPA	Phenols, Total
Wastewater	General Chemistry	Spectrophotometric	425.1	EPA	MBAS, Surfactants
Wastewater	General Chemistry	Potentiometric	2580	Std. Methods	Oxidation / Redox Potential
Wastewater	General Chemistry	Potentiometric	9040	SW-846	pH
Wastewater	General Chemistry	Potentiometric	9214	SW-846	Fluoride
Wastewater	General Chemistry	Gravimetric	1664 A	EPA	Oil and Grease
Wastewater	General Chemistry	General Chemistry	2120 B	Std. Methods	Color
Wastewater	General Chemistry	Turbidimetric	2130 B	Std. Methods	Turbidity
Wastewater	General Chemistry	General Chemistry	2150 B	Std. Methods	Odor
Wastewater	General Chemistry	Titrimetric	2310 B	Std. Methods	Acidity
Wastewater	General Chemistry	Titrimetric	2320 B	Std. Methods	Alkalinity, Hydroxide
Wastewater	General Chemistry	Titrimetric	2320 B	Std. Methods	Alkalinity, Total
Wastewater	General Chemistry	Titrimetric	2320 B	Std. Methods	Alkalinity, Bicarbonate
Wastewater	General Chemistry	Titrimetric	2320 B	Std. Methods	Alkalinity, Carbonate
Wastewater	General Chemistry	Calculation	2340 B	Std. Methods	Hardness (by calculation)
Wastewater	General Chemistry	Titrimetric	2340 C	Std. Methods	Hardness, EDTA Total as CaCO3
Wastewater	General Chemistry	Potentiometric	2510 B	Std. Methods	Conductance, Specific
Wastewater	General Chemistry	Gravimetric	2540 B	Std. Methods	Solids, Total (103 - 105 C)
Wastewater	General Chemistry	Gravimetric	2540 C	Std. Methods	Solids, Total Dissolved (180 C)
Wastewater	General Chemistry	Gravimetric	2540 D	Std. Methods	Solids, Total Suspended (103 - 105 C)
Wastewater	General Chemistry	Gravimetric	2540 E	Std. Methods	Solids, Volatile Suspended
Wastewater	General Chemistry	Gravimetric	2540 E	Std. Methods	Solids, Total Volatile

Program	Analyte Group	Technique	Method	Source	Description
Wastewater	General Chemistry	Gravimetric	2540 F	Std. Methods	Solids, Settleable
Wastewater	General Chemistry	Gravimetric	2540 F	Std. Methods	Solids, Settleable
Wastewater	General Chemistry	Gravimetric	2540 G	Std. Methods	Solids, Total Fixed & Volatile
Wastewater	General Chemistry	General Chemistry	2550 B	Std. Methods	Temperature
Wastewater	General Chemistry	Spectrophotometric	3500-Cr D	Std. Methods	Chromium (Hexavalent)
Wastewater	General Chemistry	Spectrophotometric	3500-Fe B	Std. Methods	Ferrous Iron
Wastewater	General Chemistry	Spectrophotometric	4500 S D	Std. Methods	Sulfide
Wastewater	General Chemistry	General Chemistry	4500-Cl G	Std. Methods	Chlorine Residual
Wastewater	General Chemistry	Spectrophotometric	4500-CN C E	Std. Methods	Cyanide, Total (includes distillation method)
Wastewater	General Chemistry	Spectrophotometric	4500-CN G	Std. Methods	Cyanide, Amenable to Chlorination
Wastewater	General Chemistry	Spectrophotometric	4500-CN I	Std. Methods	Cyanide, Weak Acid Dissociable
Wastewater	General Chemistry	Spectrophotometric	4500-CN I	Std. Methods	Cyanide, Weak Acid Dissociable
Wastewater	General Chemistry	Potentiometric	4500-F C	Std. Methods	Fluoride
Wastewater	General Chemistry	Potentiometric	4500-H+B	Std. Methods	pH
Wastewater	General Chemistry	Preparation	4500-NH3 B	Std. Methods	Ammonia, Distillation
Wastewater	General Chemistry	Titrimetric	4500-NH3 C	Std. Methods	Ammonia
Wastewater	General Chemistry	Potentiometric	4500-NH3 D	Std. Methods	Ammonia
Wastewater	General Chemistry	Spectrophotometric	4500-Norg C	Std. Methods	Nitrogen, Total Kjeldahl (TKN), macro
Wastewater	General Chemistry	Potentiometric	4500-O G	Std. Methods	Oxygen, Dissolved
Wastewater	General Chemistry	Potentiometric	5210 B	Std. Methods	CBOD5
Wastewater	General Chemistry	Potentiometric	5210 B	Std. Methods	BOD5
Wastewater	General Chemistry	Spectrophotometric	5220 D	Std. Methods	COD, Closed Reflux
Wastewater	General Chemistry	IR	5310 B	Std. Methods	Total Organic Carbon (TOC), Combustion
Wastewater	General Chemistry	UV/Persulfate Oxidation	5310 C	Std. Methods	Total Organic Carbon (TOC)
Wastewater	General Chemistry	Spectrophotometric	5540 C	Std. Methods	Surfactants (MBAS)
Wastewater	Hydrocarbons	Gravimetric	413.1	EPA	Oil & Grease
Wastewater	Hydrocarbons	IR	413.2	EPA	Oil & Grease
Wastewater	Hydrocarbons	Gravimetric	418.1	EPA	Petroleum Hydrocarbons-IR (TPHC)
Wastewater	Hydrocarbons	Gravimetric	1664 A	EPA	Oil & Grease
Wastewater	Hydrocarbons	GC/FID	CA LUFT	CA LUFT	Gasoline Range Organics (GRO)
Wastewater	Hydrocarbons	GC/FID	CA LUFT	CA LUFT	Diesel Range Organics (DRO) CA LUFT
Wastewater	Metals	Calculation	200.7	EPA	Hardness (calculation from ICP

Program	Analyte Group	Technique	Method	Source	Description
					results)
Wastewater	Metals	ICP	200.7	EPA	Metals, ICP
Wastewater	Metals	ICP/MS	200.8	EPA	Metals, ICP-MS
Wastewater	Metals	Ion Chromatography (IC)	218.6	EPA	Chromium, Hexavalent
Wastewater	Metals	CVAA	245.1	EPA	Mercury, CVAA
Wastewater	Metals	Digestion	3050 B	SW-846	Digestion - Metals, Waters
Wastewater	Metals	Automated, Colorimetric	3500-Fe D	Std. Methods	Ferrous Iron (Konelab)
Wastewater	PCBs	GC/ECD	608_PCB	EPA	PCBs
Wastewater	Pesticides	GC/ECD	608_Pest	EPA	Organochlorine Pesticides
Wastewater	Semivolatile Organics	GC/MS	625	EPA	Semivolatiles
Wastewater	Semivolatile Organics	GC/MS	625	EPA	Polynuclear Aromatic Hydrocarbons (PAHs)
Wastewater	Semivolatile Organics	GC/MS	1625	EPA	Semivolatiles, Isotopic Dilution
Wastewater	Semivolatile Organics	GC/MS	625 mod.	EPA	PAHs GC/MS SIM Low Level
Wastewater	Volatile Organics	GC/MS	624	EPA	Volatiles

ATTACHMENT B

Crimson Pipeline LP
Dominquez SPILL
SAMPLING FIELD DATA SHEET

Date of Sampling:
Arrival Time
Departure Time:

	Sample Type (Reg/Dup/ Trip/Equip)	Sample ID (ZV-XXY-ABB-CC)	Sample Location	Time (24:00)	Latitude	Longitude	Sample Type: Water/Soil/ Sediment (W/S/M)	Sample Type: Composite/Grab (C/G)	Sample Preservation (HCL/None)	Sample Equipment Type	Field Reading (ppmv)	Depth of Sample (bgs)	Comment
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

KEY:	**Z = Activity Phase**	**X = General Location**	DC = Dominguez Channel	**Y = Media**	**A =Sample Point Type**	**BB = Boring Number**	**CC = Sample Depth**
	N = Investigation Phase	FD = French Drain		W = Water	T = Transect		
	C =Confirmation Phase	SL = Shell Lube		S = Soil	H = Hand Auger		
	V or R= Duplicate, Otherwise left blank	YL = Youngstown Lateral	CB = Temp. TB = Trip EB = Equipment Blank	M = Sediment	G = Grab		

Notes:

GPS ID Number:

PID Serial Number:

Personnel on Site:

Field Instrument Calibration completed by

Signature:

Calibration Gas Type: 100 PPMV Isobutylene Pass / Fail

ATTACHMENT C

Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614
phone 949.261.1022 fax 949.260.3299

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager:**	**Site Contact:**	**Date:**	COC No:
Stantec Consulting Corp.	**Tel/Fax:**	**Lab Contact:**	**Carrier:**	_____ of _____ COCs
25864-F Business Center Dr.	**Analysis Turnaround Time**			Job No.
Redlands, CA 92374	Calendar (C) or Work Days (W) _____			
(909) 335-6166 Phone	TAT if different from Below _____			SDG No.
(909) 335-6120 FAX	☐ 2 weeks			
Project Name: Crimson Pipeline LP	☐ 1 week			
Site: Dominguez Channel	☐ 2 days			
P O #	☐ 1 day			

Sample Identification	**Sample Date**	**Sample Time**	**Sample Type**	**Matrix**	**# of Cont.**	**Filtered Sample**																	Sample Specific Notes:

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification

☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

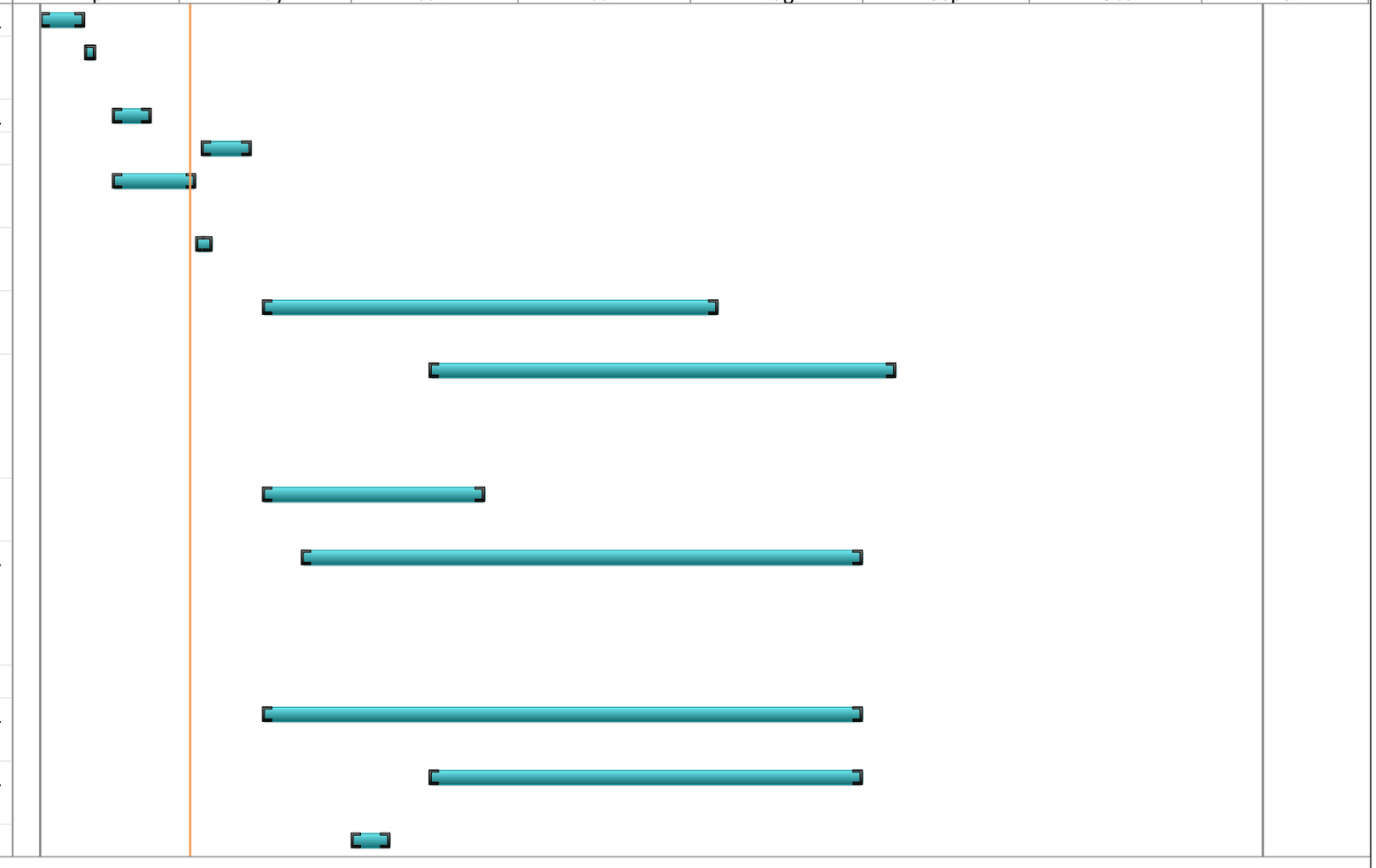
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

APPENDIX C
SCHEDULE

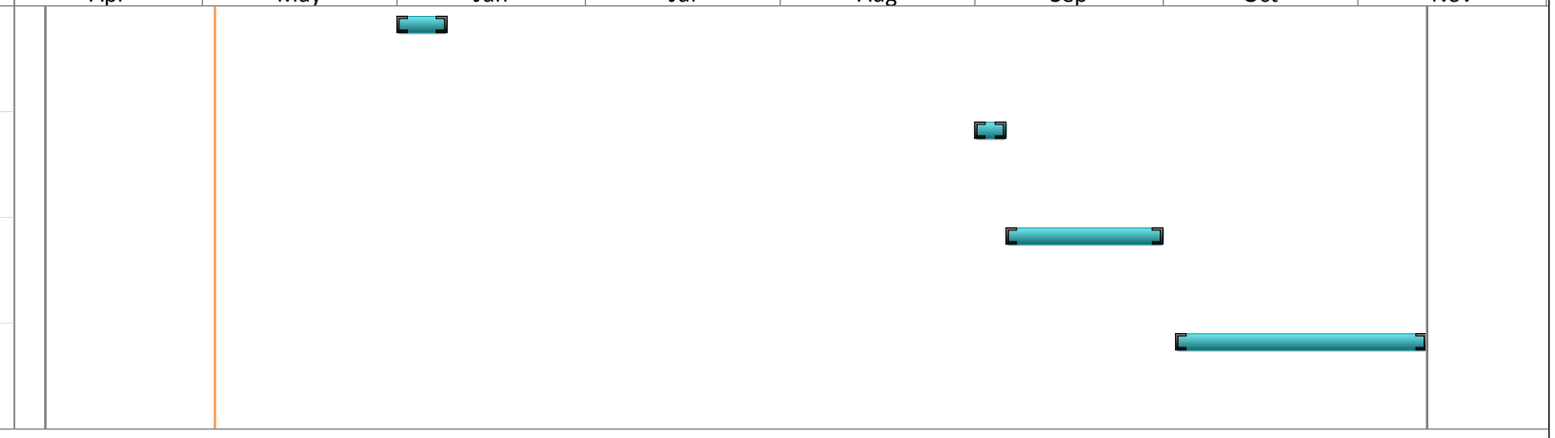
ID	Task Mode	Task Name	Duration	Start	Finish
1		Project Work Plan	6 days	Wed 4/6/11	Wed 4/13/11
2		Work Plan Review - EPA	2 days	Thu 4/14/11	Fri 4/15/11
3		ACTA Data Request	5 days	Tue 4/19/11	Mon 4/25/11
4		ACTA Data Review	7 days	Thu 5/5/11	Fri 5/13/11
5		Prepare/Revise Project Plan	11 days	Tue 4/19/11	Tue 5/3/11
6		Project Plan Review - EPA	3 days	Wed 5/4/11	Fri 5/6/11
7		Conduct Site Assessments	60 days	Mon 5/16/11	Fri 8/5/11
8		Prepare Preliminary Report of Site Assessments - Ongoing	60 days	Wed 6/15/11	Tue 9/6/11
9		Conduct Feasibility for Oil Removal	30 days	Mon 5/16/11	Fri 6/24/11
10		Prepare/Update Work Activity Plan for Oil Removal - Ongoing	73 days	Mon 5/23/11	Wed 8/31/11
11					
12		Implement Oil Removal Plan	78 days	Mon 5/16/11	Wed 8/31/11
13		Treatment System Design	56 days	Wed 6/15/11	Wed 8/31/11
14		Pipeline Removal	5 days?	Wed 6/1/11	Tue 6/7/11



Project: Dominguez Channel Oil S
Date: Tue 5/3/11

Task	External Tasks	Manual Task	Finish-only
Split	External Milestone	Duration-only	Deadline
Milestone	Inactive Task	Manual Summary Rollup	Progress
Summary	Inactive Milestone	Manual Summary	
Project Summary	Inactive Summary	Start-only	

ID	Task Mode	Task Name	Duration	Start	Finish
15		Site Assessment at Youngstown Lateral Area	6 days	Wed 6/1/11	Wed 6/8/11
16		Review Design for Treatment System - EPA	3 days	Thu 9/1/11	Mon 9/5/11
17		Treatment System Permitting and Procurement	19 days	Tue 9/6/11	Fri 9/30/11
18		Treatment System Construction and Installation	30 days	Mon 10/3/11	Fri 11/11/11



Project: Dominguez Channel Oil S
Date: Tue 5/3/11

Task	External Tasks	Manual Task	Finish-only
Split	External Milestone	Duration-only	Deadline
Milestone	Inactive Task	Manual Summary Rollup	Progress
Summary	Inactive Milestone	Manual Summary	
Project Summary	Inactive Summary	Start-only	

APPENDIX D
HEALTH AND SAFETY PLAN

Site-Specific
Health & Safety Plan

Dominguez Channel Oil Spill

Prepared for:

Crimson Pipeline L.P.

April 14, 2011

CRIMSON PIPELINE L.P
DOMINGUEZ CHANNEL OIL SPILL
HEALTH AND SAFETY PLAN

Date: _____

This Health and Safety Plan has been written for the Crimson Pipeline L.P. (Crimson) Dominguez Channel Oil Spill (Spill) and all personnel working on-site for any activities associated with the Spill. . It may also be used as a guidance document by properly trained and experienced subcontractors.

Our work can be hazardous, and it is imperative that we never forget that! It is the intent of this document to address job related risks and to mitigate these risks to the greatest extent possible. The health and safety guidelines in this Plan were prepared specifically for this site, its conditions, purposes, dates and personnel and must be amended if conditions change. This Plan must not be used on any other site without prior research by trained health and safety specialists.

This Plan will provide useful information to subcontractors and will assist them in developing their own HASP. Subcontractors should sign this plan as an acknowledgement of hazard information and notice that they must ensure that the risks posed by work on this site are addressed. Crimson is readily available to assist subcontractors in identifying and addressing their employees' risks.

A. WORK LOCATION NAME: _____

B. GENERAL LOCATION DESCRIPTION:

_____
_____
_____
_____

C. SITE CHARACTERIZATION AND ANALYSIS:

_____
_____
_____
_____
_____

D. ORGANIZATIONAL STRUCTURE

SITE HEALTH AND SAFETY OFFICER: _____

CELL PHONE NO.

SITE SUPERVISOR: _____

CELL PHONE NO:

PROJECT MANAGER(S): _____

_____

_____

PERSONNEL:_____

_____

_____

_____

E. SCOPE OF WORK: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

F. SAFETY AND HEALTH HAZARDS

Check:

Skin contact: _____ Water hazards: _____ Heat stress: _____

Hypothermia: _____ Hazards to the eye: _____ Heat exhaustion: _____

Cuts and abrasions: _____ Heavy objects: _____ Poisonous animals: _____

Vehicular traffic: _____Infectious conditions: _____ High crime areas: _____

Other (Describe): _____

_____

_____

_____

_____

_____

Attached MSDS (Check):

Crude Oil MSDS: _____

Other MSDS (Describe) _____

_____

_____

_____

G. TRAINING REQUIRED: _____

H. PRE-ENTRY (DAILY) BRIEFING _____

I. EFFECTIVENESS OF SITE SAFETY AND HEALTH PLAN _____

J. SITE CONTROL - _____

K. WORK PRACTICES _____

L. PERSONAL PROTECTIVE EQUIPMENT

Required (Check):

Hardhats: _____ Safety shoes: _____ Goggles: _____

Gloves: _____ Overalls (Tyvek): _____ Rain gear: _____

Respirators: _____ Life jackets: _____

Other (Describe): _____

N. MEDICAL SURVEILLANCE _____

O. MONITORING PROGRAM

Workers: _____

Environmental Conditions: _____

P. DECONTAMINATION _____

Q. EMERGENCY CONTACTS

	Locations	Telephone Numbers
Police/Fire Departments:	_____	_____
	_____	_____
	_____	_____
Hospitals (attach map)	_____	_____
	_____	_____
	_____	_____
Ambulances:	_____	_____
	_____	_____
	_____	_____
Paramedics:	_____	_____
	_____	_____
	_____	_____
Other:	_____	_____
	_____	_____

R. CONFINED SPACE ENTRY _____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Prepared by:

_____ _____
(Signature) (Date)

HEALTH AND SAFETY PLAN
GENERAL PROCEDURES

The **Site Health & Safety Officer (SHSO)** must be familiar with the directions to the hospital. *(It has become common to take directions off the Internet. In some cases these directions are no longer correct. It is the* **SHSO's** *responsibility to ensure that the directions stated in the HASP are absolutely accurate. It may be advisable to ask the client or call a local institution for directions.)*

Injury or Illness

If an injury or illness occurs, take the following action:

- Determine if emergency response (fire/ambulance) staff are necessary. If so, dial **911** on cell phone or closest available phone. Provide the location of the injured person and other details as requested.

- Get First Aid for the person immediately. Utilize first aid kit in vehicle. Also utilize the bloodborne pathogens kit. *(Make sure you have both kits, or one combined kit).*

- Notify the **SHSO** immediately. The **SHSO** is responsible for preparing and submitting the Incident/Near Miss Investigation Report Use the Incident/Near Miss Investigation Report and Root Cause Analysis Flowchart.

- The **SHSO** will assume responsibility during a medical emergency until more qualified emergency response personnel arrive at the site.

First Aid Procedures for Minor Cuts, Scratches, Bruises, etc.

- Each occupational illness or injury shall be reported immediately by employees to the **SHSO**.

Medical Cases Not Requiring Ambulance Service

- Medical cases normally not requiring ambulance services are injuries such as minor lacerations, minor sprains, etc.

- The **SHSO** will ensure prompt transportation of the injured person to a physician or hospital.

- A representative of /sub-contractor should always drive the injured employee to the medical facility and remain at the facility until the employee is ready to return.

- If the driver of the vehicle is not familiar with directions to the hospital, a second person shall accompany the driver and the injured employee to the hospital

- If it is necessary for the **SHSO** to accompany the injured employee, provisions must be made to have another employee, properly trained and certified in first aid, to act as the temporary **SHSO**.

- If the injured employee is able to return to the jobsite the same day, he/she should bring with him/her a statement from the doctor containing such information as:

  - Date
  - Employee's name
  - Diagnosis
  - Date he/she is able to return to work, regular or light duty
  - Date he/she is to return to doctor for follow-up appointment, if necessary
  - Signature and address of doctor

  If the injured employee is unable to return to the jobsite the same day, the employee who transported him should bring this information back to the jobsite and report **SHSO** who will include the information in the Incident Investigation Report and forward the report to Crimson Pipeline L.P

Emergency Cases Requiring Ambulance Services

- Medical cases requiring ambulance services would be such cases as severe head injuries, amputations, heart attacks, etc.

- Should ambulance service be necessary, the following procedures should be taken immediately.

  - Contact necessary ambulance service and company emergency services by dialing **911** and notify the **SHSO** for the site.

  - Administer first aid until ambulance service arrives.

  - While the injured employee is being transported, the **SHSO** should contact the medical facility to be utilized.

  - One designated representative should accompany the injured employee to the medical facility and remain at the facility until final diagnosis and other relevant information is obtained.

Death of an Individual or Hospitalization of Three or More Employees

The procedure as outlined in "First Aid and Medical Cases", above, should be followed. If the injured person dies, then, local officials and coroner must be notified ***immediately***. will notify the **local OSHA office within 8 hours of the incident or fatality** in the event of fatality or hospitalization of three or more employees.

Response to Spills or Cut Lines

Prevent problems by documenting the location of underground lines (e.g., product, sewer, telephone, fiber optic) before starting site work through the Dig Alert office. If a pipeline line or tank is punctured or another leak occurs, immediately report the incident to Crimson Pipeline L.P. and the Project Manager. Implement emergency response procedures for control and containment if safe to do so.

Document the event as soon as possible using the Incident Investigation Report. Include dates, times, actions taken, agreements reached, and names of people involved. Use additional pieces of paper to document the event completely. The Project Manager is the Qualified Individual for the incident until relieved and notify the regulatory authority or utility as necessary.

In the event of a spill/release, follow this plan:

1. Stay upwind of the spill/release.
2. Wear appropriate PPE.
3. Turn off equipment and other sources of ignition.
4. Turn off pumps and shut valves to stop the flow/leak.
5. Plug the leak or collect drippings, when possible.
6. Use sorbent pads to collect product and impede its flow, if possible.
7. Call Fire Department immediately if fire or emergency develops.
8. Inform Project Manager about the situation.
9. Determine if the client wants to repair the damage or if the client will use an emergency repair contractor.
10. Based on agreements, contact emergency spill contractor for containment of free product. Advise the client of spill discharge notification requirements and determine who will complete and submit forms. Document each interaction with the client and regulators and note, in writing; name, title, authorizations, refusals, decisions, and commitments to any action.
11. Do not transport or approve transportation of contaminated soils or product until proper manifests have been completed and approved. Be aware that soils / product may meet criteria for hazardous waste.
12. Do not sign manifests as generator of wastes; contact Project Manager or Waste Compliance Manager to discuss waste transportation.

***All spills/releases must be immediately reported to* Mike Romley (Crimson Pipeline L.P.) *at (661)343-3218 or* Mark Reese (Beacon Energy Services) *at* (714) 624-5301.**

Hazard Assessments and Precautions

ACTA Railroad Safety Requires:

Due to the extremely hazardous nature of working around the railroad right-of-way it is the responsibility of all personnel to insure that ACTA's safety requirements are followed without deviation. This includes ACTA's requirements for training, permitting, working under the direction of safety observers, and adhering to all policies and procedure for working in and around the right-of-way.

Traffic Guidance and Control Plan:

Incidents on sites have shown the need for a well-thought out traffic guidance and control plan. This plan must consider:

- *Level of traffic activity on a site and provide for the safety of all workers on the site. E.g., a gasoline site that is open to the public should require sawhorse barricades to protect workers.*

- *Cones and caution tape have proven ineffective in a number of situations. Other traffic guidance and control precautions include candles, delineators, placing vehicles between staff and the public, "snow" fence, etc.*

- *We must cordon off as much space as is necessary to ensure our safety. This must be discussed with clients as it may mean closing down additional gasoline pumps or entrances to a factory, etc.*
- *Company and personal vehicles should be parked as far away from potential traffic as possible.*

- *How contractor heavy equipment, e.g., vacuum trucks, drill rigs, cranes, loader/diggers, etc will be parked and maneuvered around the site. All heavy equipment movements must be coordinated in advance to avoid incidents.*

- *Review local regulations for: formally developed traffic guidance and control plans signed by licensed individuals, police details, flagmen, hours of activity, closure of streets to move equipment, etc.*

- **It is the responsibility of the SHSO to annotate the Site Plan with the Traffic Guidance and Control configuration if a "formally developed" Traffic Guidance and Control Plan is not available. It is also the responsibility of the SHSO to disseminate the Traffic Guidance and Control information to all site personnel during the Daily Production Safety Meeting and any other time as necessary.**

Work on this project will be conducted during the hours: **0600 – 1800, Monday - Friday**.

Personal Safety Concerns and Precautions: **Personnel must be trained on the safety hazards and requirements of working in the railroad Right-of-Way. All personnel must follow ACTA safety requirements for working in these areas. Any personnel working around or in the Dominguez Channel must wear approved personal floatation devices and must have an observer present at all times.**

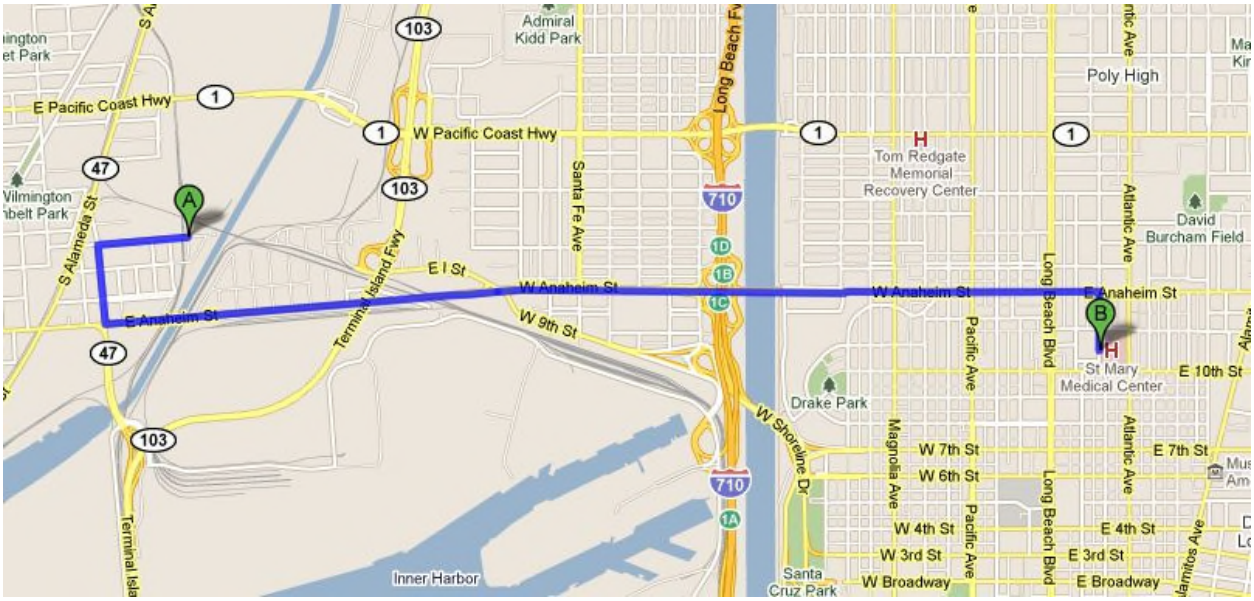
Jewelry Safety: **Jewelry can be dangerous. Large ear rings, long necklaces, loose-fitting bracelets, rings, watches, etc. can become entangled in machinery and cause removal of limbs, as well as be conductive of electricity. Use caution and avoid unnecessary hazards!**

DAILY PRODUCTION HEALTH AND SAFETY BRIEFING LOG

Date:	
Start Time:	
Issues Discussed:	
1.	**6.**
2.	**7.**
3.	**8.**
4.	**9.**
5.	**10.**
Attendees	
Print Name and Company	**Signature**
Meeting Conducted by:	**Signature:**
Name (Site Health and Safety Coordinator):	**Signature:**

Emergency Services:

St. Mary Medical Center
1050 Linden Avenue
Long Beach, CA 90813-3393
(562) 491-9000



Driving Directions:

E Grant St & N Wainwright Ave, Los Angeles, CA 90744

1. Head west on E Grant St toward Goodrich Ave (0.3 mi)

2. Take the 3rd left onto N Henry Ford Ave (0.3 mi)

3. Take the 3rd left onto E Anaheim St (3.2 mi)

4. Turn right at Linden Ave (0.2 mi), destination will be on the left

St. Mary Medical Center
1050 Linden Avenue
Long Beach, CA 90813-3393

APPENDIX E
WASTE SEGREGATION AND OIL QUANTIFICATION PLAN

Waste Segregation and Quantification Plan

Date: January 14, 2011

Incident Name: Dominguez Channel Mystery Oil Spill

Location Latitude: 33.785010, Longitude: -118.2372450

OBJECTIVE

To facilitate proper disposal and quantification of recovered pollutant generated from response and recovery operations associated with the incident named above.

WASTE STREAM SEPARATION

Recovered pollutant shall be separated by waste stream type and location where the waste was recovered. **Pollutants recovered from Waters of the State shall be kept separate from pollutants recovered elsewhere.**

Liquids: Liquids shall be held in secure tanks for gauging to determine oil content by DFG and Responsible Party representatives prior to disposal. In order to expedite cleanup and disposal, a direct assessment of the contents can be made, or a representative sample may be analyzed by the TSD Facility. Liquids recovered during flushing or steaming and Decontamination operations should be kept separate from recovered free floating oil.

Solids: Recovered pollutant held in solids will be placed onto roll-off bins or over-pack drums with tare weights. Solids shall be segregated as follows; sorbents, debris (oiled), soil, or PPE. Solids recovered from Waters of the State or adjacent shorelines shall be stored separate from those recovered elsewhere.

Vegetation/Wildlife: Vegetation and/or wildlife removed in the cleanup operation will be bagged and weighed separately.

QUANTIFICATION

Quantification of recovered pollutants will be conducted in accordance with California Code of Regulations Title 14, Section 877. The Responsible Party and the Department of Fish and Game may stipulate to the amount of oil spilled and/or recovered. The amount of recovered pollutant can be determined by visual assessment by DFG and responsible party or by lab analysis of samples taken in the presence of DFG and responsible party representatives.

FINAL DISPOSAL

When quantification is final, the waste may be disposed of in accordance with all Federal, State, and Local laws. A copy of the ~~Hazardous Waste Manifest~~ and associated documents shall be provided to the DFG as proof of disposal.

Shipping Papers

INCIDENT NAME: Dominguez Channel Mystery Oil Spill

The following table indicates the types of waste to segregate. Place a checkmark in the appropriate box for this incident. This plan should be included in the IAP.

Waters of the State of California			
Liquids		Solids	
Free Floating Product		Sorbent materials	
Flushing and/or Steam Cleaning		Vegetation / Sediment	
Decontamination		Impacted Wildlife	
		Oiled Trash & Debris	
		PPE	
		Response Materials	
Non-Waters of the State			
Liquids		Solids	
Recovered on property	✓	Sorbent Boom/Pads	✓
Recovered off property		Vegetation / Soils	
W/I 2ndry containment		Impacted Wildlife	
Product from Source		Oiled Trash & Debris	✓
Steam Cleaning		PPE	✓
Decontamination	✓	Response Materials	✓

Comments: _____